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#86

Popular Woodworking

September 1995

lostalgic Poplar Porch Swing–
ull Size Plans Make it Easy *p.41*

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ring Your Memories to Life *p.26*

Form Bent CD Rack *p.46*

COUNTRY CLASSIC

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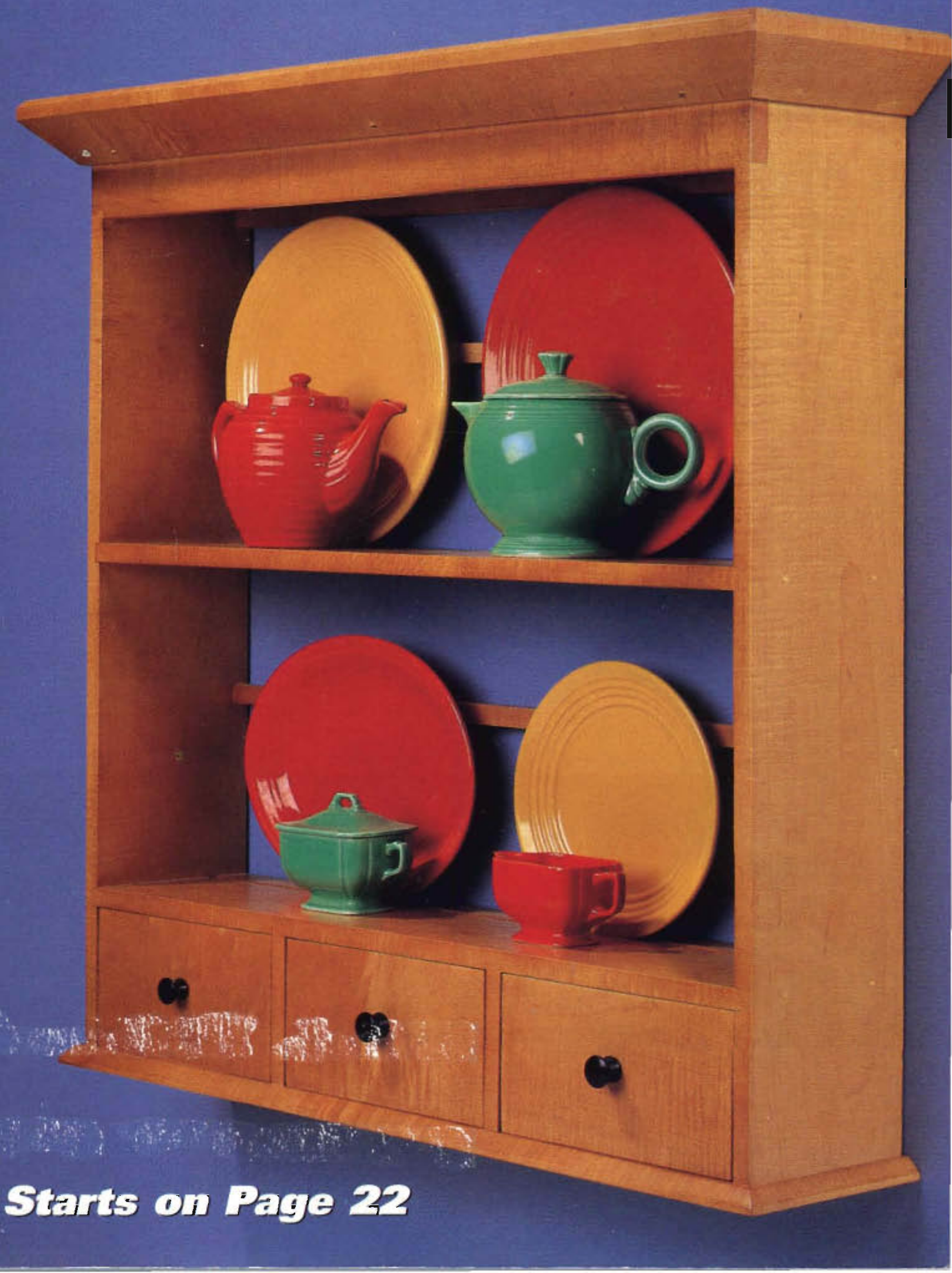

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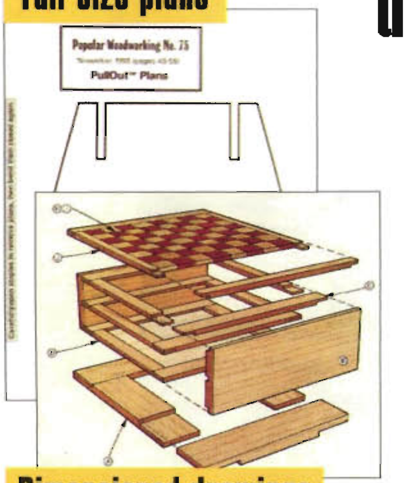

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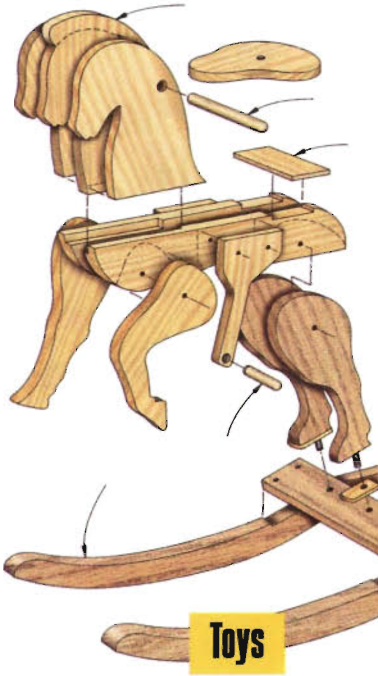

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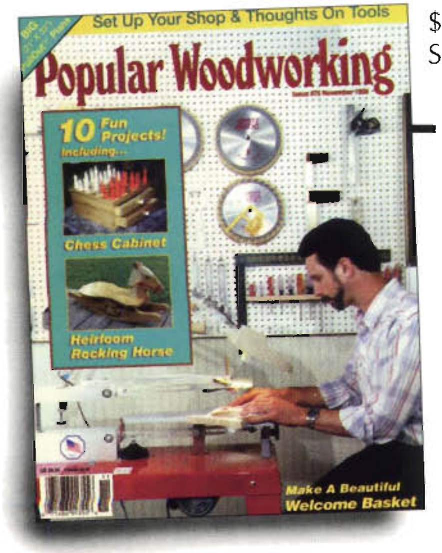
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On the Cover

Our main cover project this month is a country wall cupboard from the U.S. Colonial period. One great feature is that it can be built using only a table saw and basic hand tools. Other projects on the cover include a Porch Swing that looks so good it will stop traffic on your street, a Collectors Coffee Table for showing off your treasures in great style, and a CD Rack that you won't find on any store shelf. All these projects require a minimum of equipment yet offer you classic looking furniture and accessories.

PHOTO BY RON FORTH PHOTOGRAPHY

Safety Note
Safety is your responsibility. Manufacturers place safety devices on their equipment for a reason. In most photos you see in *Popular Woodworking*, these have been removed to provide clarity. In some cases we'll use an awkward body position so you can better see what's being demonstrated. Don't copy us. Think about each procedure you're going to perform beforehand. Think ahead. Safety First!

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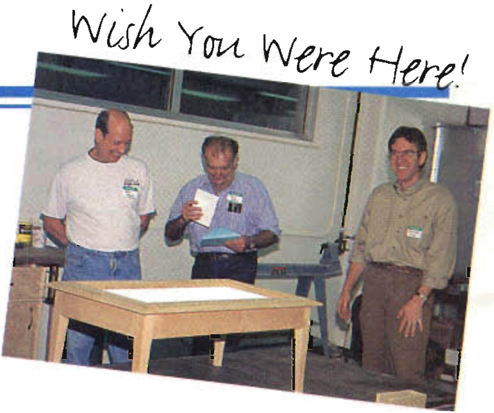
Turnings

We had a great time a few weeks back hosting a group of 50 readers and representatives of Freud, USA. The occasion was a seminar *Popular Woodworking* sponsored.

Before dinner, readers toured our *Popular Woodworking* workshop. A lively and informative seminar followed with Freud's Jim Brewer and Hugh Foster (yes, the same Hugh Foster that you've been reading in *Popular Woodworking* for years is a Freud spokesperson). Four subjects near and dear to us all were presented: saw blades and some genuine innovations that we'll all benefit from; the lowdown on "anti-kickback technology;" some important reminders about safety; and, a discussion and demonstration about plate or biscuit joinery.

Not being totally up to speed with "anti-kickback technology," I was surprised to learn the design of blades and other tooling with this feature is the legal safety standard of the German government and has been adopted throughout central and western Europe. Its purpose is to help protect industrial woodworkers. Freud was first to bring this technology to the U.S. and has offered it to us with no increase in prices! When you learn about how it works and why it works, it's an impressive presentation. What makes it a fascinating safety concept is that it is "passive" in nature. You, the woodworker, need do nothing to benefit from it (besides buy the tool to begin with). Unlike guards on machines (too many of which are never installed or too frequently removed at the peril of the operator), this safety feature does not affect the tool performance or the operation of equipment. In a future issue of *Popular Woodworking*, we will present this important innovation in more detail.

Freud's Mr. Brewer also enlightened us on new developments in saw blade design and presented a refresher course in saw blade selection. Important information to pass along includes the advantages of thin kerf blades. The main purpose is not to save an incidental amount of material on each cut, but to make your underpowered table saw perform better. Freud's tech department believes a 10" table saw using a standard ⅛" kerf blade should be at least 3 h.p. or it is underpowered. The thin kerf blade requires less power from the motor. Sure, it's good for your motor, but it's also good for you since the stock, especially heavier stock being ripped, is easier to push through. Other important developments include blade design resulting in substantial noise reduction (Oh, how I hate those blades that scream), and a host of blade tooth designs for specific cutting operations.


Wish You Were Here!

Popular Woodworking *guests Rene Sterchi (l.) and John Hehn (c.), yuk it up with yours truly (r.) in the shop before dinner and the Freud seminar.*

Hugh Foster addressed shop safety concerns and reminded us that a pair of safety glasses (under $20) could save our eye sight, and disposable foam ear plugs (25 cents) will help keep the hearing aid salesman away from our door (and savings account). Hugh also stayed late to discuss and demonstrate biscuit joinery with about half the crowd who decided the 9 p.m. scheduled ending was just too early to go home.

In future seminars, we'll bring the industry leaders to you, in person if you're one of the lucky ones who can attend, or vicariously through the pages of *Popular Woodworking*.

A 'Snappy' New Feature

We're beginning a new feature this month called "Snap Shop." We'll be presenting simpler projects or techniques that can easily be demonstrated in pictures. If a picture's worth a thousand words, this first "Snap Shop" saved 14,000 words, or half a magazine! It's another way we're trying to get more information you can use between the covers of *Popular Woodworking*.

Letters

We welcome your comments, pro or con, about articles we publish. We also want to see color pictures of what you're building. Send your letters and photos to: Letters, Popular Woodworking, 1507 Dana Ave., Cincinnati, OH 45207. Letters may be edited for publication.

Woodworking World

Thanks to all the readers who responded to our call for information about stagecoach plans in the July issue. You've provided plenty of sources for more infomation, and we appreciate the help!

I have used drawings and other plans for wagon wheels from Windy Hill Woods (P.O. Box 308, Central City, Iowa 52214). They have great drawings and photos and wheels that require no special tools to construct. Their prices are reasonable, too.

Elmer F. Grissel
Cedar Rapids, Iowa

For stagecoach building plans, I suggest readers write Kayo Fraser (c/o Northwest Enterprises, 161 Gold Creek Rd., Gold Creek, MT 59733) and request a catalog, which costs $2. Not only do they have plans, but several good books such as *The How-To Book of Stagecoach Building.*

In addition, if anyone wants a list of manufacturers, suppliers and services for wagon and buggy parts, they should write to request *The Reach* (P.O. Box 932, Kendallville, IN 46775). The source book costs $7.

Mark Meccage
Baker, Montana

If folks are looking for plans to build wagon wheels, they should write to Wildwood Designs (Box 661, Richland Center, WI 53581). Request plan #1103, which sells for $2.50.

David Nusbaum
Pahrump, Nevada

It's Greek, er Latin, to Us

Just a short note concerning your usage of common and scientific names of tree species. In your March issue (#83) you featured yellow-poplar in your Wood Types column. You refer to it as "yellow poplar" rather than as "yellow-poplar." The hyphen may appear to be trivial, but it is technically correct to use it when the species in questions is not a true member of the referenced genus.

Your scientific names in the article are also incorrectly handled. A scientific name is always italicized, or at least underlined. Furthermore, the genus is always capitalized, whereas the species is always in lowercase. Therefore, "liriodendron tulipfera" should be "*Liriodendron tulipifera*" (note the misspelling of the species). Also "populus deltoidus" should be "*Populus deltoides,*" and "populus balasamifera" should be "*Populus balsamifera.*"

These discrepancies detract only marginally from an otherwise fine article. I enjoyed the information, as I do your magazine in general. However, as a forestry professor, I cannot help but correct such errors when I see them. It drives my students nuts!

Michael G. Messina
Bryan, Texas

OOPS

I have just finished reading "An Elegant Plant Stand" in the March issue (#83) and without checking the plans completely, there are several errors.

First, the lower spindle turning adds up to 10⅙", not 10¼". Second, the upper spindle turning adds up to 7⁵⁄₁₆", not 7¼". Third, the cross section A-A shows 4¼". It should be 2⅛". Lastly, if you mean to show the drilling holes for the lower spindles on the drawer section lower triangle, the 1¼" dimension just won't cut it. That triangle is 1" smaller, therefore the dimensions cannot be the same.

W.E. Gallagher
Hot Springs Village, Arkansas

ED. Mr. Gallagher, you could have included a towel for wiping the egg off our faces!

More Preparing Stock

I was browsing through the woodworking magazines at the local newsstand when I spotted the March, 1995

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Letters

Popular Woodworking. The featured article, "Preparing Stock" by Hugh Foster, is just what I have been trying to get some information about.

The reason I was so interested in the article is because with my limited budget, I can't afford to buy much finished lumber. Locally, rough sawn lumber costs about half of finished lumber. I have plenty of time, so I don't mind making my own finished boards.

I have been trying to learn how to make finished stock from rough sawn, so I was excited about your article. Since I have a 6" jointer, I suppose the widest boards I should buy rough sawn is 6". The article, however, did not explain fully what is the longest board that can be surfaced on a jointer. My jointer has a total length of infeed and outfeed tables of about 42". Would it be possible to plane longer boards if I could construct an auxiliary infeed table? Also, can I expect that the rough sawn lumber I buy should be straight enough so that I can finish long boards?

When surfacing a bowed board on the jointer, should I maintain pressure on the outfeed table so I don't bend the cupped suction down to the infeed table and take as many passes as necessary to make one side flat? I am interested in learning more. Can you lead me to any other articles, books or sources on this subject?

Frank G. Mungo
Cuyahoga Falls, Ohio

ED. It's a pretty in-depth topic to handle here, but: yes, your widest board will be limited by the width of your jointer. As to length of board, as long as you keep the board flat to the outfeed table your only concern is awkwardness. Seldom will you need to use a board longer than 8', so determine your finished dimension and allow some overage for sniping and cracks. Don't count on straight boards from your lumber yard. Allow enough thickness to compensate for twist and bow. Long boards are a challenge, but if they aren't too bowed or twisted, you'll straighten them out. Some practice will give you the feel for this chore. That leads to your last question: when surfacing a board, the goal is to have one surface finish flat. If you bend or force the board to meet the outfeed table you defeat that process. Make as many passes as it takes and your work will be the better for your patience.

Giddy-Up

I have enjoyed the good articles in Popular Woodworking, and in the September, 1993 issue (#74), an article caught my eye, and amazingly, my memory. My daughter has a few horses and I thought the Exotic Western Stirrups by Devore O. Burch would be a great Christmas present. It was and she loves them.

Stuart P. Jackson
Roanoke, Virginia

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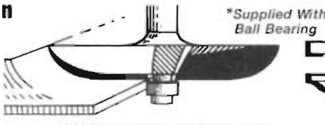
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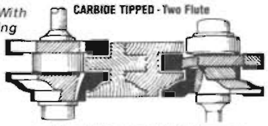
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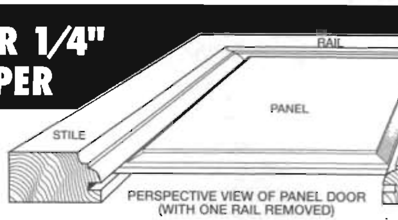

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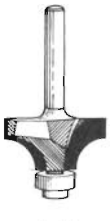
#1314	ROUND OVER - 1/8" Radius	1/4"	$11.00	
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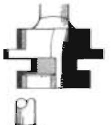
#1333	TONGUE & GROOVE - Straight	1/4"	$29.00	
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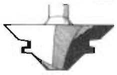
#1351	LOCKMITRE -7/8" Cutting Length	1/4"	$32.00	
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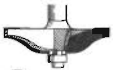
#1353	OGEE RAISED PANEL -2" Large Diameter	1/4"	$28.00	
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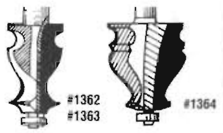
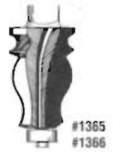
#1362	1" C.L.  #1362 #1363 #1364	1/4"	$24.95	 #1365 #1366
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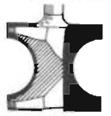
#1330	BULL NOSE - 1/2" Diameter of Circle	1/4"	$16.00	
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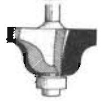
#1382	ROMAN OGEE - 5/32" Radius	1/4"	$16.00	
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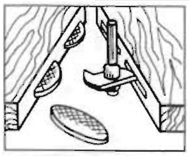

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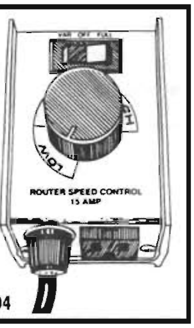

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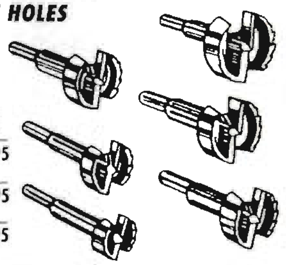

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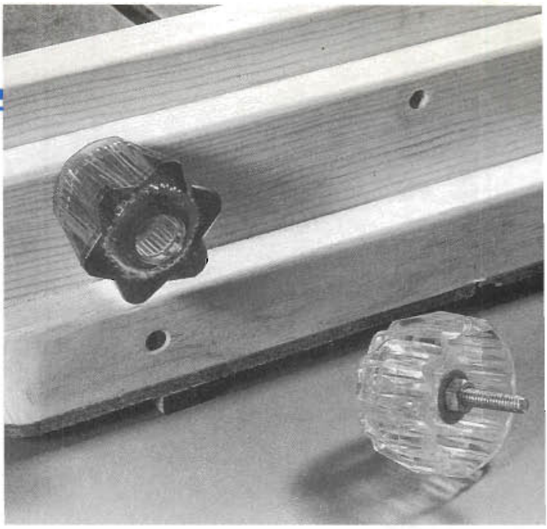
—*SS, the Editor.*

Get a Grip

The handles from discarded plumbing fixtures can often be easily modified for use as knobs on shop jigs and devices. The plastic and metals (usually brass) of which these handles are made can be drilled and tapped to serve as huge "wing nuts," or fitted with stove bolts and nuts for tightening into a T-nut or threaded insert.

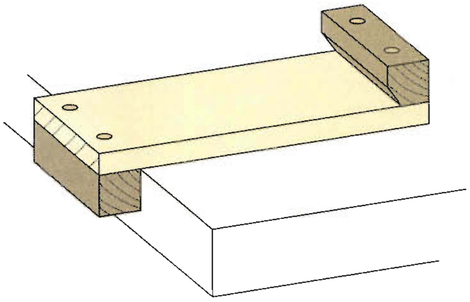
Edwin Borgeson
Portland, Oregon

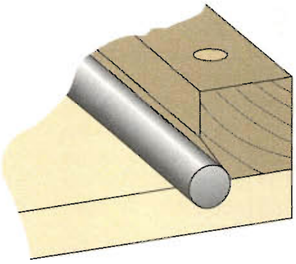


Stretch to Fit

My bench model drill press often gave me problems when the work piece was too tall to fit under the drill or too short to sit on the base and still be reached. I solved this by taking the original post and a piece of 1½" water pipe to the local vocational education school where they were glad to turn it down making the new one about five inches longer. It really has helped and I've had no reason to put the original back.

James A. Johnson
Brunswick, Ohio



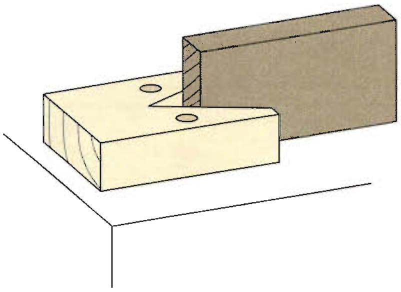


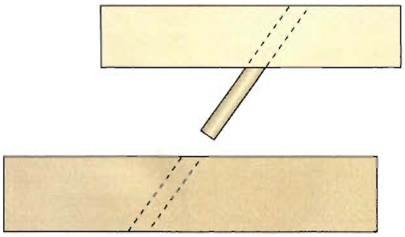
Hooked on Hold-down

I had to replace a badly worn bench hook and made the new one with one end undercut. It gives me a better grip on thin stock and round pieces, such as the dowel rods.

The board is hardwood, with a base of 5" x 13" x ¾". The ends, 1½" square, are fastened with glue and ½" dowels. The undercut is about ¾" inch deep with a 60° bevel.

Percy W. Blandford
Stratford, England





New Angle to Planing Block

A block with an acute-angled V cut in it is not a new idea for holding thin material on edge over the bench top. It might be screwed to the bench top or made removable with dowel rods in the block going down squarely into holes in the bench top. Even before wear takes place, the block is liable to rise under the pressure of planing. You can cure this by arranging the dowel pegs at a slight angle, so planing pressure has a tightening effect on them.

Make the block and drill for the pegs, then use it as a template or jig for drilling the bench top, before gluing in the dowels.

Will Atkins
Chicago, Illinois

Run Those Panty Hose to the Shop

Used panty hose yield several effective shop vac pre-filters. Put the filter into one leg, cut the hose to length, and reinstall the filter. Knot the cut end and you have another pre-filter.

This is especially effective in keeping larger particles from clogging the filter, especially in lower-powered units.

Chuck Kubin
Denver, Colorado

Dust Collection's In The Bag

Rather than purchase an after market dust collection system for a contractor-type table saw I decided to adopt the following dual strategy.

Box in the sides of the legs with 7-mill plastic sheet fastened with duct tape. The plastic sheets are not taped all the way to the bottom of each leg. Leave four inches untaped giving you loose flaps. Next, make a shallow, four-inch deep tray using thin plywood to fit between the legs and slide it in place. The plastic flaps are then inserted in the tray. This allows the saw dust to fall naturally into the catch tray, which can be slid out easily and emptied when full.

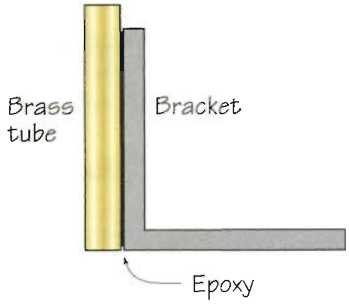
Eric Worden
Halifax, Nova Scotia

A Turn-Around that Makes Cents

The life of a sanding sleeve can be extended by reversing it on the drum. Worn and clogged abrasive grains take on a new life with this reversal of rotation.

Thomas LaMance
Prewitt, New Mexico

A Boring Problem Solved



Even when drilling simple right angle holes, I never got the accuracy I needed. The holes were always a few degrees off when I used my hand-held drill. So, I made a couple of basic jigs to help.

I visited a local hobby shop and purchased short lengths of brass tubing in various diameters. Back in the shop I cut about 1" off each size and using epoxy, affixed them to one leg of a 1" x 1" corner bracket, which I checked to make sure was square. In the smaller diameters I mounted 2 tubes per bracket, side by side.

To use, I select a tube just larger than the bit I'm using, hold the bracket against the surface to be drilled, and run the bit down through the tube.

R. B. Himes
Vienna, Ohio

Tricks of the Trade shares readers' ideas for making woodworking tasks easier and safer. Send your original, unpublished ideas to Tricks of the Trade, Popular Woodworking, 1507 Dana Ave. Cincinnati, Ohio. If needed, please illustrate with a focused, color photo or diagram. We pay $35 for each trick we publish.

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The Finishing Forum is an ongoing discussion about the art of wood finishing. If you have a question or a problem, we'd like to help. If you have a tip or secret to share, or you recently tried a new product, write: The Finishing Forum, c/o *Popular Woodworking*, 1507 Dana Ave., Cincinnati, OH 45207. Letters may be edited for clarity.

In A Pickle About A Finish

I am in the process of making a crib for my daughter-in-law, and she has requested a pickled finish on the project. I have looked through all my back issues to find information on this type of finish, but have not located any information. Would you please give me some ideas on how to go about putting a pickled finish on my project?

Dave Johnson
Johnson City, Tennessee

Putting a pickled finish on your crib shouldn't be too difficult. I'll give you the basic idea and then you can experiment to get the look you want. A pickled finish gives the appearance of a surface that was painted and subsequently stripped, leaving traces of the paint. There's no rule concerning how much of the paint should remain on the wood, it's a matter of personal taste, but the color of the paint is usually white or off-white.

Try thinning white paint with mineral spirits or turpentine until it's about the consistency of whole milk. (You could also try a low-odor alternative such as latex semi-gloss enamel.) Apply this to your wood liberally and let it soak in for twenty minutes or so. Wipe off the surplus until the amount of paint remaining on the wood pleases you. If too much remains, let the paint dry overnight and then scrub the surface down with fine steel wool and thinner, leaving paint in the intricacies and corners. Wipe off all surplus. For a more authentic look, let the paint dry a week or so and strip the surplus off with remover. Finish up by wiping all residue with denatured alcohol so that subsequent coatings will bond properly. (Many removers contain retarders such as paraffin.) Remember that the type of wood you use will determine how much paint gets absorbed. Pine will soak up a lot more pigment than maple.

You can "layer" slightly different colors on the wood and then strip off the surplus, creating a very convincing-looking imitation of an old piece that has been painted and then partially stripped. I recently finished a hand carved mirror frame in pine this way and was very pleased with the results. I used wax as a topcoat and liked the informal look it gave, though you'll want a more substantial film or overcoat, such as varnish, on your crib. (I'd suggest a water base polyurethane varnish.)

Remember that someone else's definition of pickling may vary from mine and the formula they give for producing it could be quite different. But you have the basic idea: a surface that looks as if it was painted long ago and then stripped at a later date, something like old English pan-

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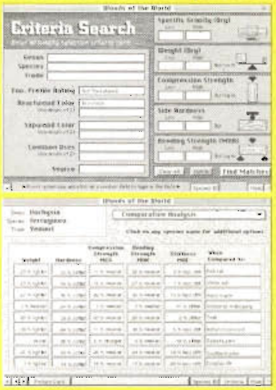

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eling in pine with traces of white lead paint or whitewash. How much or how little paint you allow it to remain in the wood is a matter of personal taste. The real secret lies in your willingness to experiment and be open to whatever tools, materials and techniques help you achieve the look you're want. If you adopt this attitude, the results may pleasantly surprise you.

Fill-er Up?

I recently built a hall table out of Honduras Rosewood and have some questions about the finishing process. We used Sherwin Williams Sherwood catalytic water white conversion varnish.

1. Should I have used a filler for the grain pores, and if so, what type? After the third coat of sprayed-on finish it still has the wood pores visible and open to the touch.

2. Should stain be applied before finishing? If so what kind of stain? My rosewood was finished without any stain and has some of the orange streaks through it, which seems to be common in rosewood. All rosewood furniture I have seen is always very dark which, obviously, makes me think it is always stained.

Richard Ruehle
Findlay, Ohio

You ask whether or not you should have used a filler on your Honduras Rosewood. Without seeing the piece of furniture, and knowing the kind of use it will be subjected to, I can only tell you how I would finish it. First, I'd use an oil finish or a wiping varnish, such as Formby's Tung Oil Finish. I'd build it up in several coats and then rub it to a satin sheen with mineral oil and steel wool. I'd also consider using wax as a finish.

My personal feeling is that tropical woods, which are sometimes oily by nature anyway, look best with an oil finish. It's partly an aesthetic choice, and partly that oil finishes tend to penetrate more than film finishes like lacquer and varnish. This gives you a better bond. Applying a heavy film finish to Honduras Rosewood carries with it a certain risk because the finish could peel off if not applied carefully. In a nutshell, I find oil finishes more compatible with woods that are oily in nature. It's more common sense than anything else.

This brings me to your question about filling the pores of the wood. I'm against it because I consider this a natural part of wood's tactile quality. The pores in Honduras Rosewood are larger than in other woods. If this is objectionable to you, I would suggest using a wood that is more to your liking from the beginning, rather than modifying it to make it look the way you want. Rosewood is a beautiful wood. Why should we impose ourselves on it in an attempt to make it look like something else? What we end up with is often more like plastic than wood.

As to staining, I would view stain as a tool for evening out the tone that is bound to have some variation on a large piece of furniture. I'd use an aniline dye, dissolved in water, which has the most transparent tone of any stain. I would mimic the colors already present in the wood rather than totally changing its character. The dark color you have learned to associate with Rosewood furniture may be a result of an entirely different kind of Rosewood having been used in manufacturing. Brazilian Rosewood, which was used more in former times, is darker and richer than most Honduras Rosewood. As supplies of Brazilian Rosewood dwindle and the wood becomes scarce (and endangered), other varieties have begun to replace it. Unfortunately, none of them have the richness, the color or the metallic sheen present in this superior wood.

You've asked some very good questions, ones that come up pretty frequently in my work as a woodfinishing consultant. I'm risking appearing like a snob in the advice I'm giving you, but I'm willing to do so in hopes that you can see a deeper meaning in between the lines of my answer. Yes, I'm a purist when it comes to wood and woodfinishing. At the very least I hope you'll benefit from my honesty. Good luck. PW

***Tom Wisshack** is a woodfinishing consultant and makes and restores fine furniture in Galesburg, Illinois.*

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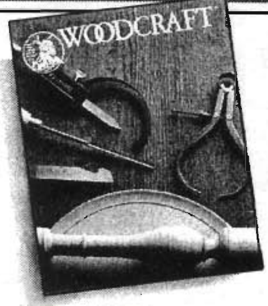

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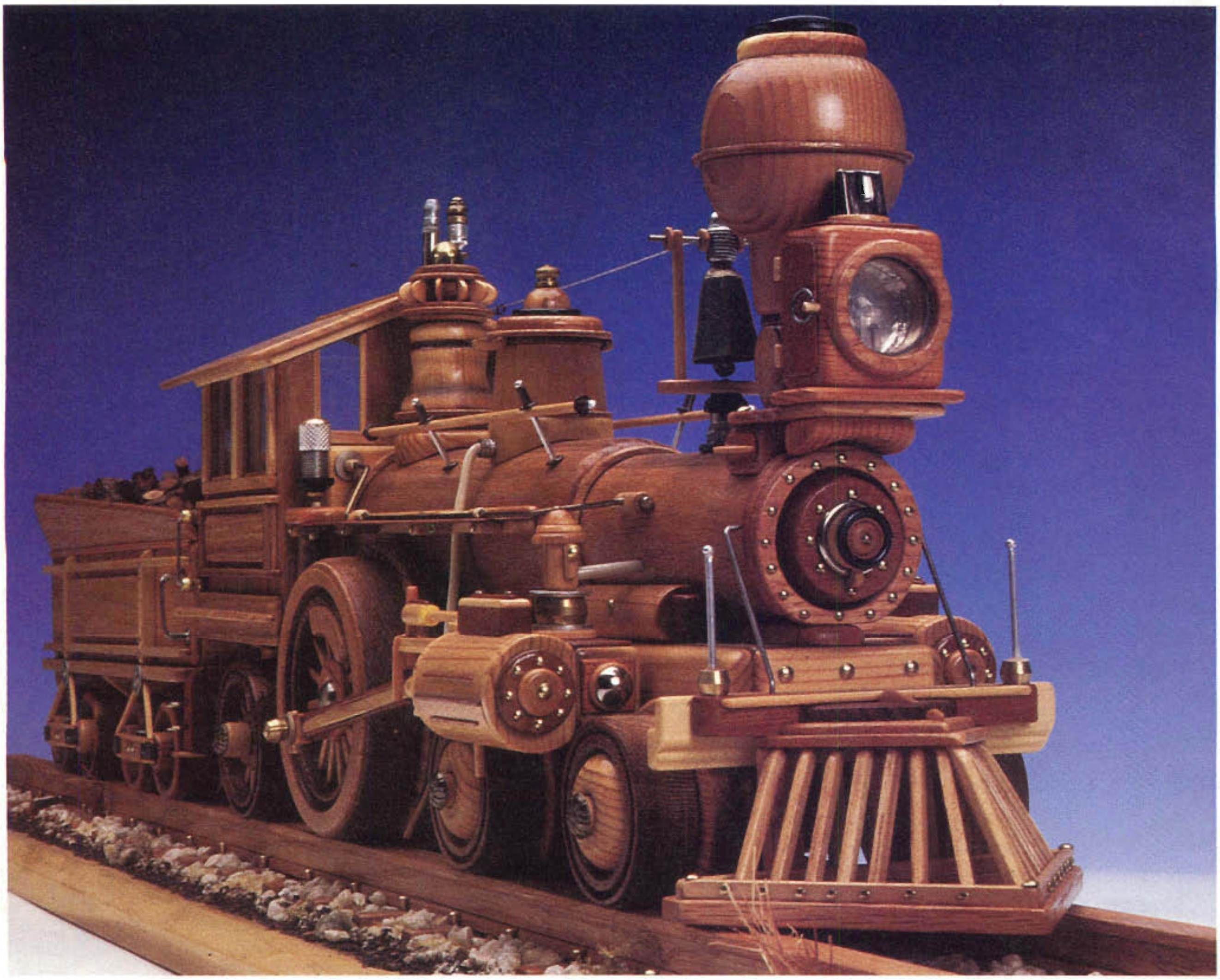


PHOTOS BY RICHARD TURNER OF MEDIA PHOTO-GRAPHICS

I became an artist at the age of ten. Since then, I've taught myself to use many mediums, including pen and ink, oils, watercolor and colored pencil. My exploration of wood as an artistic medium eventually led me to a revelation: wood is a more appealing and diverse medium, and unequaled for sensual, visual and tactile pleasure. It echoes with a journey of earthly existence and spiritual evolution.

> *"I've been paid a minimum of $200 for a simple wheel barrow piece and up to $12,000 for a commissioned steam engine with water tower."*

In the 1980s, Florida underwent tremendous growth. Building materials, wood and scrap lumber showed up on curbs and at roadsides everywhere. I salvaged and stored until my yard overflowed. From this surplus, I built a 12' x 8' workshop, and at that point, had no other aspirations for the wood I had saved from the landfill. I completed a few basic woodworking projects, but the artist in me began to realize that more was possible with the wood I'd collected. One day, I envisioned something different, and I created a mailbox resembling an old-fashioned mail truck. The spark ignited.

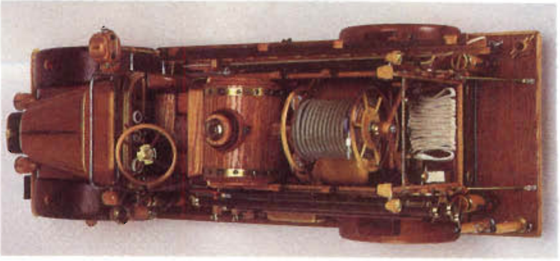
Soon my shop filled with toy boats, trains, planes, bicycles and wagons. Those great piles of discarded objects and scrap wood transformed into three-dimensional sculptural collages.

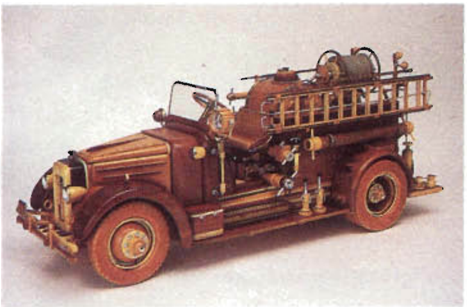
I think of my work as a manipulation of relationships, between natural and manmade, offering a unification of elemental parts. My earlier works, primitive and bulky, were composed of pine, cedar, birch, popular and bamboo.

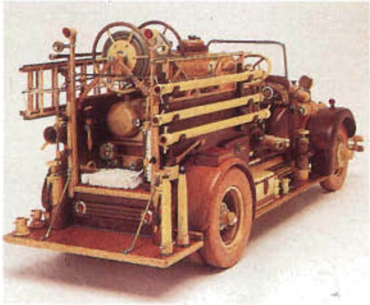
by Joseph Ramsey

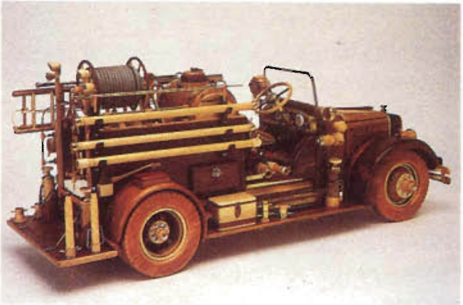
Fire Engine

The body and fenders are cedar, with the running boards and floor boards made of mahogany. The tires are made from pine with poplar rims and spokes. The dashboard sports detailed instrumentation including the ignition and starter switches. Movable pieces include wheels, side mounted searchlight, rear spotlights, steering wheel, gearshift, suction pump handle, hose reel with rubber hose and metal nozzle. Also, the ladder, with grappling hooks, slides in and out by means of a rope on a pulley.
Dimensions: 10"H x 10"W x 24"L



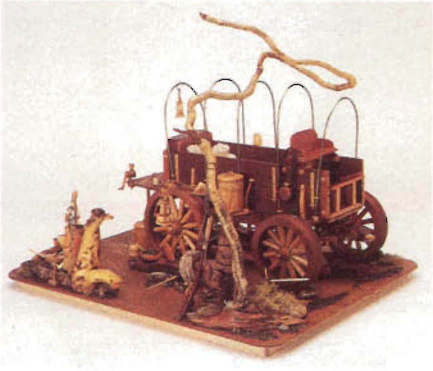


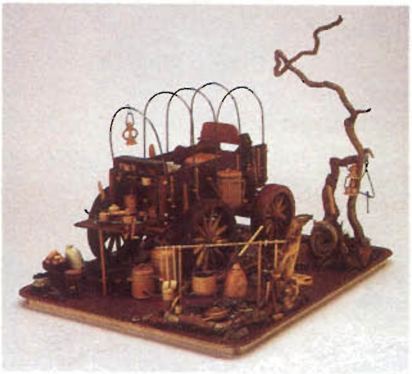




Chuck Wagon

The wagon is made primarily of cedar and pine, with a variety of woods used for other pieces. The hitching runner disconnects and stores beneath the wagon. Movable pieces include the wagon wheels, swiveling steering column and the rear cabinet which opens, closes and locks. Details include a water barrel, medicine cabinet, lanterns, canteens, rope, rifle, and dinner chime outside of the wagon. Inside, a clothing trunk, bedrolls and staples are packed away neatly. The campfire scene includes frying pans, coffeepot, ladles, pots, pans, knives, meat grinder and dishes.
Dimensions: 12"H Base: 16"W x 12"L





For the first five years, I didn't really tell anyone about the kind of work I was doing with wood. My toys, lingering on the shelves of my shop, were given away to family and friends or exchanged for needed supplies, tools and materials. I attended my first wood show in 1985, won awards for my carving and had an epiphany—what I thought was a creative hobby was quickly becoming more than that. My "toys" were becoming works of art.

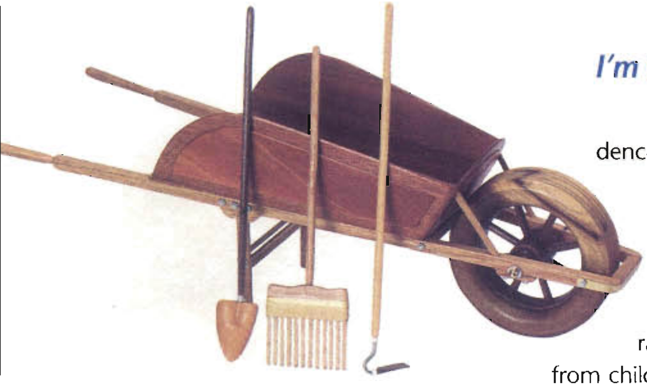
Eventually, people who liked my work bought enough pieces to provide both the funds and needed encouragement for continuation on this path. So, the eventual transition from hobby into a full-time creative enterprise in 1990 was a natural one.

Co-workers purchased pieces for gifts or personal collections. Art festivals brought income from cash awards and sales, and provided the opportunity to promote my work and to maintain customers. Local exhibitions of my work led to further contact with potential clients and commissions.

Working exclusively as an artist for the past eight years, I focus on designing and creating original, high-quality, wood sculptures. These are usually in limited number, smaller and more simplified versions than my original pieces, and in series of six to twelve pieces, or groups with a chosen theme. My designs are one-of-a-kind; I never duplicate any projects.

Pricing for my sculptures takes into consideration complexity and intricacy of the design, materials used and time requirements. I have been paid a minimum of $200 for a simple wheel barrow piece and up to $12,000 for a commissioned steam engine with water tower.

While making uncomissioned pieces, I don't really worry about whether or not



I'm happy to say that 85% of my materials are still "scrap."

the projects will sell—someone always seems to like my creations.

My current work, delicate and more sophisticated, makes use of domestic hardwoods, oak, mahogany, maple, walnut, ash, cherry, as well as metals and other components. I'm happy to say that 85% of my materials are still "scrap."

The intricate detail I put in my projects comes from patience, persistence and discipline. I work toward a sincerity of expression, which invites participation and contemplation from the viewer. I hope to uplift the soul with reflections of quieter times.

My philosophy is simple. I follow my own vision and inner voice. Sometimes my designs are inspired by technical research, and sometimes they grow from my imagination. Regardless, personal expression and perspective take precedence over technical correctness; precision is merely a tool of interpretation. Improvisation forms the cornerstone of my approach.

To a great extent, the inspiration for my work is drawn from childhood memories and travels to foreign lands. Living in Europe, especially Germany and Japan, allowed me the opportunity to experience rich and diverse cultural heritages. Raised in the Great Smoky Mountains, I developed an appreciation for a simple lifestyle and a value system that are harmonious with nature. Traditional woodworking, carving, whittling and a full array of native arts and crafts stimulated my mind to explore new possibilities.

The materials and techniques used to create my work are experimental, eclectic and represent an attempt to maximize the natural beauty of wood. Limited resources or availability of materials can add excitement and a certain freedom to the creative process. My distinctive style of craftsmanship is a synthesis of previous artistic methods and an effort to teach myself woodworking fundamentals. Through trial-and-error, observation and practice, I continue to learn and apply this knowledge.

The metal and glass items, which I refer to as "tiny-shiny" pieces, are culled from radios, clocks and the like, and kept in a jar waiting for the right application.

I use familiar bench model machines in my work. A band saw, drill press, scroll saw, and disc/belt sander. My basic hand tools consist of clamps, small files, tweezers, razor knives, wire cutters, coping saw, and a large pair of nail clippers. Although it can be time-consuming and difficult, using hand tools gives me the greatest satisfaction.

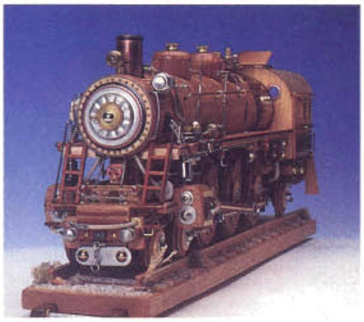
I don't use blueprints or preliminary drawings because, for me, they inhibit the essence of the piece by imposing restrictions of direction and dimension. I scale dimensions by eye. Each project begins with a feeling, then an idea just appears.

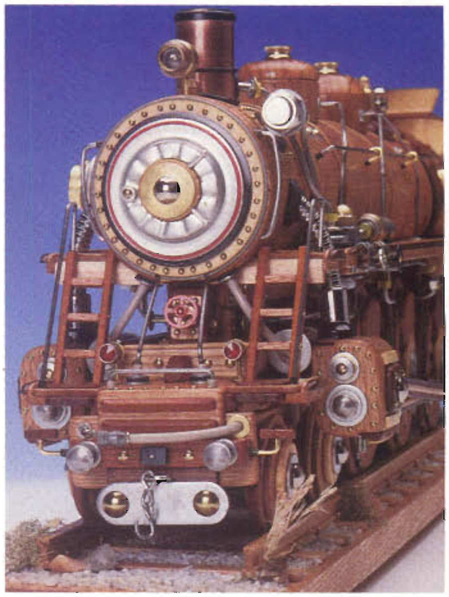
Once the idea exists, form, proportion and choice of materials become major considerations. The selection of wood will be influenced by specific variations of color, graining, contrast, texture and the final effect of finishing.

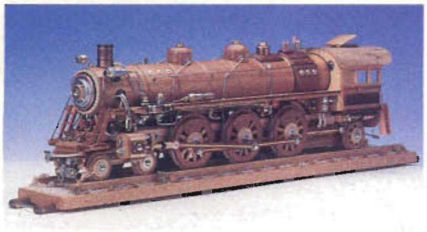
continued on page 14

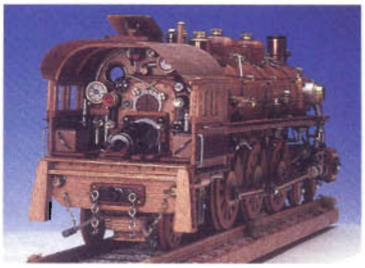
Steam Engine

The boiler and cab are made from oak, with other detail pieces made from walnut, mahogany, cedar, pine, birch, poplar and bamboo. Movable parts include the 4" drivers and driving arms, the front four wheels, and the break and throttle levers in the cab turn. The trap door on the cab opens and closes. Other features include a completely detailed cab with brake lines held in place by a hook and chain. The track itself is held in place with brass spikes.
Dimensions: 10"H x 7"W x 30"L









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March '91	Dust bench; benchdrop clamp; sailor's work; compact disk storage; spiral lamp bases; dinasour bank; kitchen storage rack; occasional table; turned and carved bowl.
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January '90	Coffee table; Folding candelabra; ladle; firewood box; butterfly figures; cedar-lined chest; extension cord reel; pole lamp.
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pwad

continued from page 12

To preserve the sculptural element, machines are only used for rough cuts. By starting with wheels, the ultimate size of the piece and its overall definition and character are determined.

My preferences for assembling include a common yellow carpenter's glue for wood and a super adhesive glue for metal, fabric, artifacts, or Plexiglas. Before attaching metal parts, I rub the contact side over a piece of medium grit sandpaper, which will make it porous for better adherence. Polishing the surface with jeweler's cream adds shine and protection.

Surface images are enhanced by hand sanding and shaping. Leaving subtle imperfections such as tiny scratches, knots and dings, gives personality plus an antique appearance. Selective detailing adds warmth, softens lines and enlivens the material.

The final statement, finishing, gives animation and highlights colors for a free-flowing visual harmony. I use a high gloss tung oil applied in a dust-free area, because it dries fast, and doesn't leave bubbles in the finish. The first coat absorbs quickly and the second coat can be applied in about an hour, but allowing 12 to 24 hours for proper drying is best. Before adding a third coat, steel wool is used to remove any rough surfaces, thus allowing it to develop a deep, rich luster. After a full day's drying time, the steel wool/tung oil process can be repeated for each additional coat, depending upon the desired effect of the gloss. For my smaller pieces, two coats are applied, and six for the larger ones. Brushes clean easily with warm water and dish detergent.

Each design varies in degree of detail and movable features, which may include wheels, windows, visors, lights, doors, steering wheels, pedals, gearshifts, swivel seats, radiator caps, hoses and ladders.

I hesitate to quantify my work in terms of time, or total number of parts used, since it's subject to many other variables. However, the average can take from two to seven months for completion.

My craft is a continuous process of learning. It rewards me with many new experiences, and offers a view to a future creation on the horizon. I think I'm lucky to have found something I love to do that I do well.

And, it takes strength—strength to find patience and dedication inside yourself, and strength to break the rules, if necessary, to make your living. PW

Joseph Ramsey, originally from North Carolina, now resides in a rustic 1880s home in Ormond Beach, Florida. He makes his living by creating one-of-a-kind "toys."

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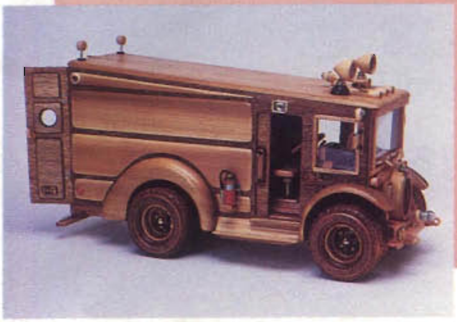
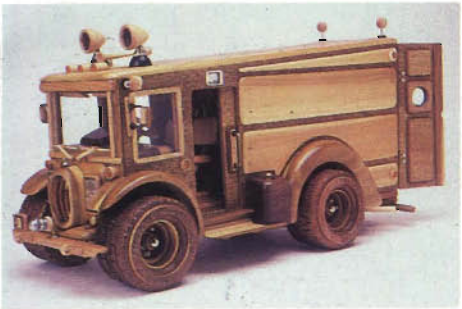
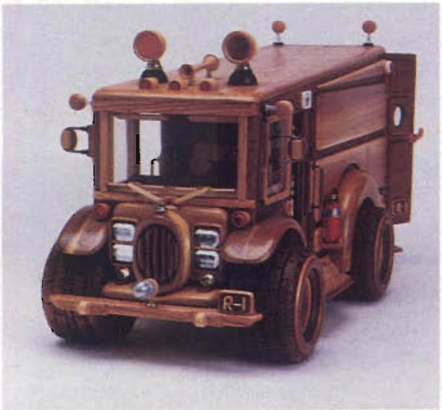
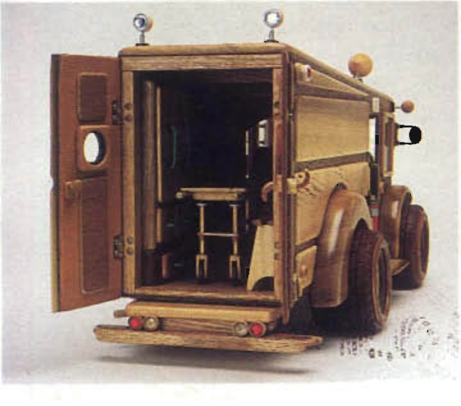


The body is made of poplar, while the tires are made of cedar and poplar. Movable parts include the gearshift, steering wheel, swiveling spotlights. The bucket seats swivel, the rear doors open, close and lock, and the sliding side doors operate. Other details include the siren, which is placed prominently on the front bumper, an exterior and interior fire extinguisher, and full instrumentation on the dash and in the rear area. The gurney is removable—and it rolls.
Dimensions: 10"H x 8"W x 18"L







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Hollows & Rounds

Learn more about collecting and using these valuable tools — they're more beneficial to your woodshop than you might think!

Apart from the wooden rabbet plane, hollows and rounds are perhaps the simplest looking of all wooden planes. The relatively narrow, 9" slab of beech, usually aged to a dark, dull brown, has no fancy profile like other moulding planes, no large wedge or imposing iron, and no fancy boxing or abundance of chamfers adorning the stock. But this apparent simplicity hides a surprising amount of sophistication. If you've never used one of these planes before you might be very surprised at how much they can add to your woodworking.

Many hollows and rounds can be found today in antique stores, yard sales and flea markets — an indication of the important role they once played in woodworkers' crafting. It could be difficult for someone unfamiliar with them to guess how they are used. There are no fences, shoulders, or depth stops — just a simple curved sole that can appear very difficult to use. Where do you start with such a plane? What do you guide it against, and how can you control how deeply it works?

Naming and Sizing Conventions

Unlike most moulding planes, which are named for the shapes they cut, hollows and rounds are named for their own profiles, which are the opposite of the shapes they produce. Thus the plane with a convex sole is called a round plane even though it cuts a hollow, and the plane with a concave sole, the hollow, actually cuts a convex shape, a round *(**figure 1**)*.

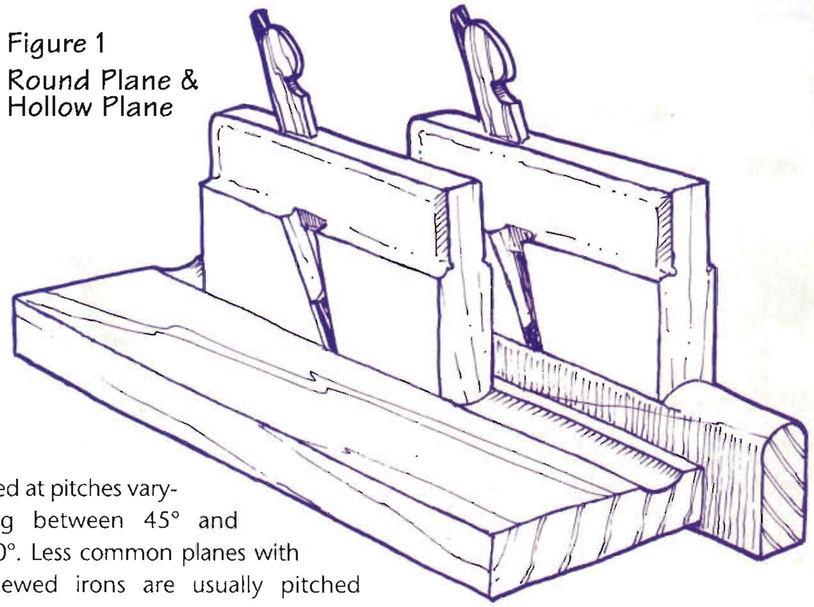


Figure 1
Round Plane & Hollow Plane

Although at first glance one hollow or round looks much like another (except for the fact that it might be bigger or smaller) there are, in fact, different kinds of hollows and rounds. The most common has square-set *irons* (blades) bedded at pitches varying between 45° and 50°. Less common planes with skewed irons are usually pitched somewhat higher, around 55°. Both varieties, straight and skewed, can be found with cutting edges ground to form different shapes of hollows and rounds, that is, different arcs. Those that cut an arc one-sixth of a circle (60° of arc) are most common, but both flatter and tighter arcs also exist.

Don't confuse the size, which is usually indicated by a stamp on the heel of the plane, with the shape of the arc. For example, a plane with 4/8" stamped on its heel indicates how many eighths of an inch wide the profile the plane will cut. You could assume that profile will be ½" wide, but this gives no indication of how tight or flat the profile of its cutting edge may be. Manufacturers frequently indicated the size of the arc by noting the relative measurements in their catalogs. Some simply included a diagram duplicating the exact profile, and others printed tables of the sizes of the circles worked by various models. Measurements varied considerably from one manufacturer to another. In fact, after one of the biggest manufacturers of moulding planes, The Ohio Tool Company, absorbed another plane manufacturer, it had to publish two sets of arc measurements: one for its own planes, and one for the absorbed company.

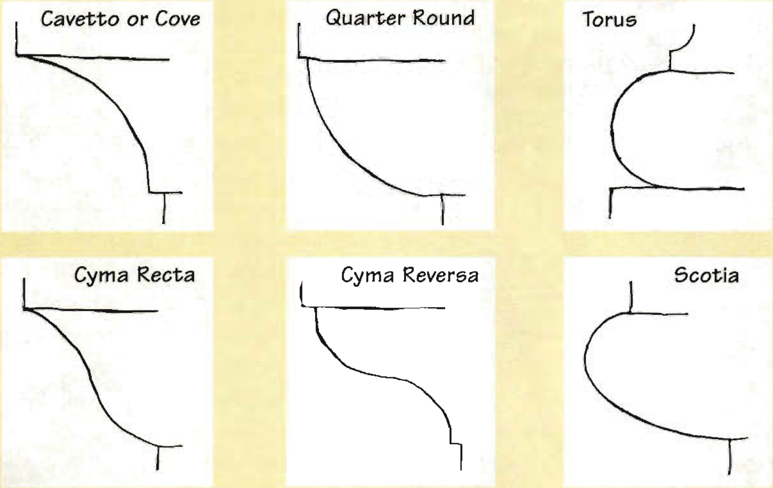
Specialized Varieties

Planes that cut 90° arcs are called Table hollows and rounds, and are used primarily for cutting the two halves of a rule joint (to join drop leaves to table tops). But either of these planes can be very useful used in conjunction with regular hollows and rounds. Apart from the tighter arc, a table hollow differs from a regular hollow by being beveled on both sides of the stock instead of just one. More expensive models were also made with fences, something unknown with regular hollows and rounds. However, models with a fence are often mistaken for moulding planes.

Another major variety is the side round. This type may have a profile consisting of a quarter round or a half round, *(**figure 2**)*. It was made in handed pairs left and right — but note that there is no side hollow plane.

Apart from regular hollows and rounds

The Principal Subdivisions of Mouldings



Most molding profiles are a combination of the simplest forms. Shown here are some basic forms and how they develop into the cornice or crown molding at right. By combining the cove and quarter round above, the more commonly known ogee profile is created (Cyma Recta/Cyma Reversa). Stretching half the Torus curve into an ellipse makes up the Scotia profile. A "bead," or small "corner," is often used to provide an end or transition from one moulding profile to the next.

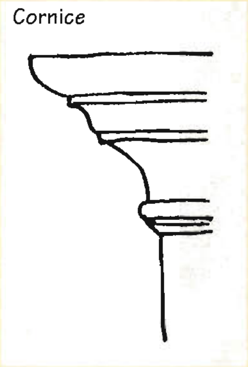
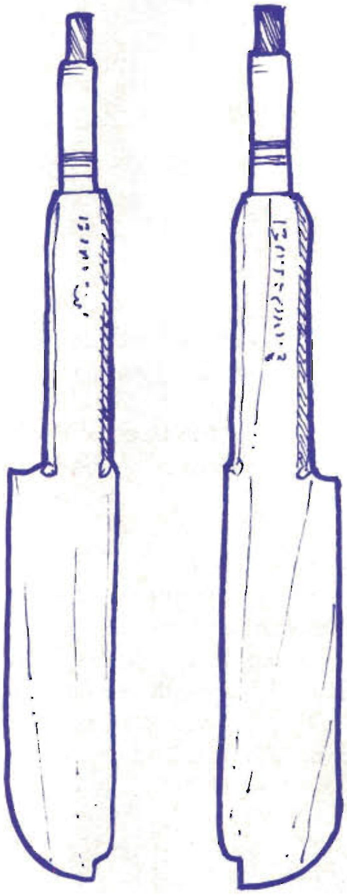


Figure 2
A pair of side rounds, seen from the front



there are several other old wooden planes that cut similar shapes. This group includes planes that have stocks similar to those of bench planes rather than the slim moulding plane type, and often have double irons (cutting irons and capirons). Ship hollows and ship rounds, gutter planes, forkstaffs, and nosing planes are the most prominent of this group.

Pairs and Sets

Hollows and rounds were originally sold in sets of pairs. It's still possible to turn up a matched pair, often in a custom-made box containing several such pairs. But don't think that a single plane is useless without its mate or the rest of its set. It's up to you to decide how many you would like. Cabinetmakers and joiners who worked in shops kept many more sizes and types than a carpenter would have carried around. Even manufacturers could not agree how many planes constituted a "set."

As mentioned earlier, apart from the fractional number indicating width stamped on a plane's heel, most planes bear another number: the manufacturer's code for a particular size. Since there was no uniform system among manufacturers, you cannot assume that by collecting a mixed group of planes numbered consecutively one through 15, for example, you will have all available sizes in this range. In America, makers often numbered their hollows and rounds from 2 to 30, using even numbers only and starting with planes ¼" wide, increasing by increments of a quarter of an inch up to 2". In Britain, on the other hand, a common system was to use both odd and even numbers and to sell sets of eighteen pairs ranging from ⅛" wide to 1½" wide, increasing in increments of sixteenths of an inch. In addition, using both odd and even numbers made it possible to sell groups of so-called "half sets" of nine pairs consisting of only odd or even numbers.

Yet a third number sometimes appears on the heel of these planes. This is the manufacturer's model or catalog number. It simply indicates the plane's generic type, that is, a hollow or round plane, as opposed to any other sort of plane. With so many sizes and graduations it's possible to find planes of almost any size from 1/16" wide on up, and in various arcs, making a definitive 'set' far greater than the nominal nine or eighteen. You could collect hollows and rounds for years and still find new types. Although these numbers can be very valuable to the collector, as a woodworker, you're probably better off ignoring all of them. The best plan is to simply acquire whatever planes cross your path until a

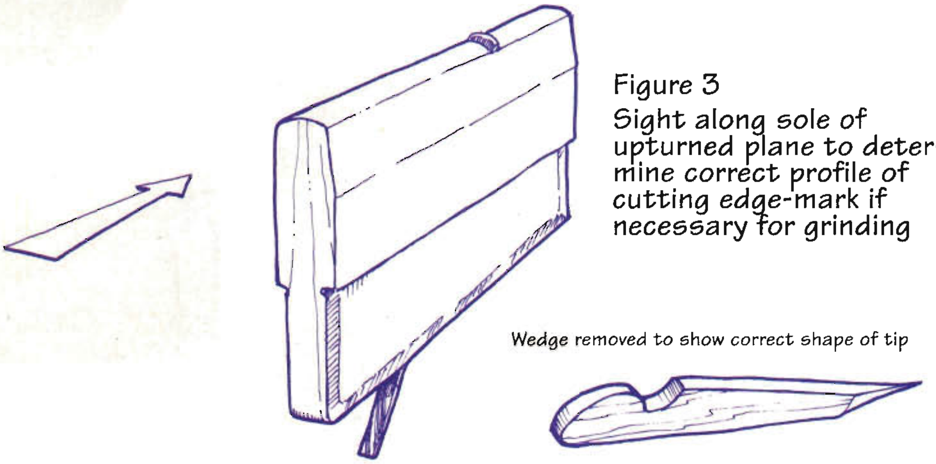


Figure 3
Sight along sole of upturned plane to determine correct profile of cutting edge-mark if necessary for grinding

growing collection and a little experience make more choices meaningful.

Preparation for Use

Hollows and rounds are a little more difficult to use than other planes because they have no built-in fence or depth stop. This often masks the fact that difficulty in using them may be due not to inexperience, but to the plane being poorly set up. First of all, the iron must be sharp and correctly set. After sharpening, the flat side of the iron must be truly flat with no pitting or scratches — at least in the vicinity of the edge and the bevel must be regular across the entire profile. The angle of the bevel will vary according to the set of the iron in the stock and the hardness of the wood being worked. Experience will ultimately dictate a bevel somewhere between 20° and 30°, so start off by forming a bevel around 24°. If the edge breaks down too quickly, increase the angle of the bevel. If it doesn't break down, you can aim for less angle. But bear in mind that no matter how fine an edge you put on the iron, the profile of the edge must match the profile of the sole.

Matching the cutting edge of the iron to the profile of the sole is likely to be your first job when reconditioning an old plane. Not only is the sole likely to have been worn out of shape but inept sharpening is likely to have further increased the disparity. Only in extreme cases resulting from excessive wear or abuse should you attempt to match the sole to the iron. Rather, the iron should be matched to the sole. If the discrepancy is gross, put the iron in the stock, secure it lightly with the wedge, and tap it gently until the entire width of the iron can be seen protruding through the sole as you sight along it *(figure 3)*. Mark the iron with a fine felt-tipped pen held flat against the sole and grind to this line, establishing the correct bevel as you do so. Since many planes are very old, the stock may have shrunk in width. This will require further careful grinding so that the iron does not protrude from the sides.

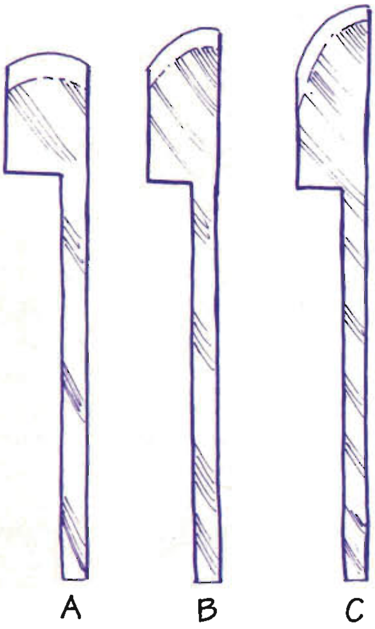


Figure 4
Profile of cutting edges of
A. Round plane iron
B. Skewed round plane iron
C. Side round plane iron

Note that the irons of skewed planes, and to a much greater extent the irons of side rounds, do not display a symmetrical arc. Extra care is needed when stoning these irons to maintain the correct profiles, as shown in *figure 4*.

As is common with practically all moulding planes, most hollows and rounds you find will have laminated irons. The softer metal used for the back of the cutting edge and the thin shank that extends up through the plane's throat tend to rust easily, even though the actual cutting edge may be in good condition. Clean this part well, but treat the malleable metal gently, so that flaking rust or pitted surfaces do not interfere with the removal and adjustment of the iron. Even if the throat is clean, and the iron well-bedded, correctly shaped, and well sharpened, a damaged or poorly shaped wedge can cause endless frustration. The sharp end of the wedge should be beveled in order to direct the shavings out of the stock. Over time the wedge may become blunted and act as an obstruction. This causes the shavings to jam up and choke the throat in a hard-to-remove accordion-like mass. Resist the temptation to remove this mass with a knife or awl, you might further damage the smoothness of the mouth and throat. Remove the wedge and refit it correctly so that it sits without rocking against the bed of the throat and is correctly tapered and beveled down to its tip.

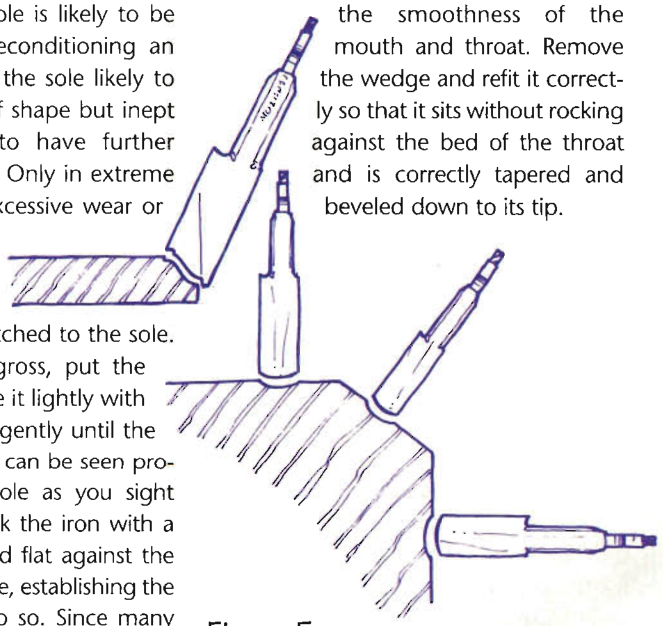


Figure 5
Showing spring line on moulding plane indicating angle at which to hold plane, and round planes always hold perpendicular to work

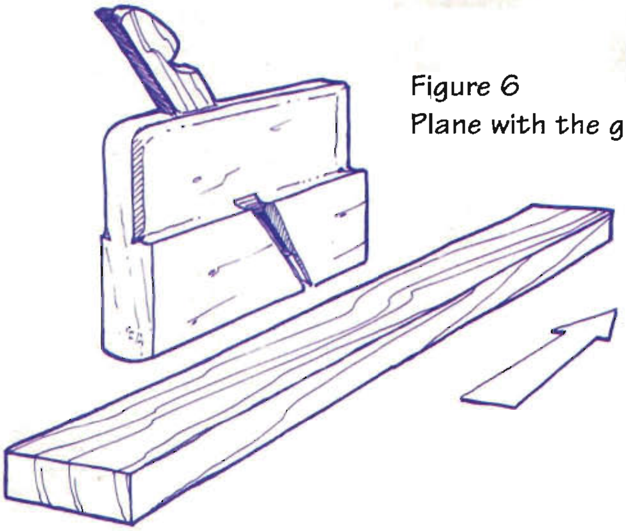


Figure 6
Plane with the grain

Operation

Hollows and rounds are sometimes represented as the black sheep of the moulding plane family since they cut no distinct, specific shape, such as an ogee, a cavetto, an astragal or a bead. They're said to be used only in place of a specific plane in a makeshift effort to reproduce a required moulding. In short, they cut no moulding that is properly their own.

While pinch-hitting for a missing moulding plane is indeed one of their strengths, it's by no means their sole purpose. They're also invaluable for completing and trimming moldings begun by other planes (not to mention moldings formed with the router or by using the shaper). They are also important for sculptural shaping, and of course, working hollow and round shapes in their own rightsuch as linenfold paneling. Furthermore, when you consider their potential use as substitutes for many router, shaper, and other power tools it becomes harder to devalue these especially useful tools.

The main problem you're liable to run into when using these planes for the first time concerns the angle at which the plane should be held to the work. Most moulding planes are designed with spring. This is usually indicated by a line inscribed on the toe of the tool showing the vertical angle at which the plane must be held to the work. There is no spring line on a hollow or round plane, and since the cutting profile should represent a regular section of a circle, perhaps you might think it would make no difference how the plane was held. In fact it makes all the difference, although initially the plane is usually held perpendicular to the work ***(figure 5)***.

The second problem has to do with

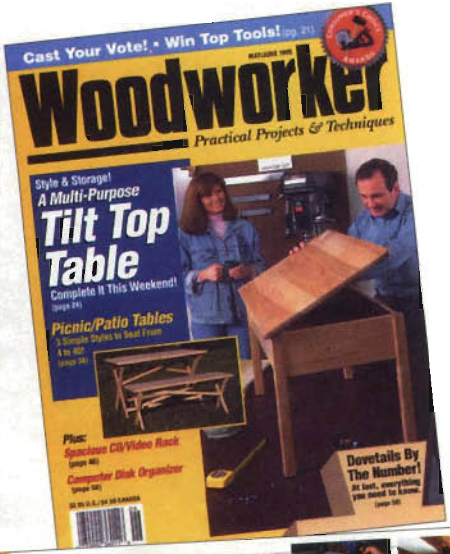

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Figure 7
Showing how round planes can form undercut profiles

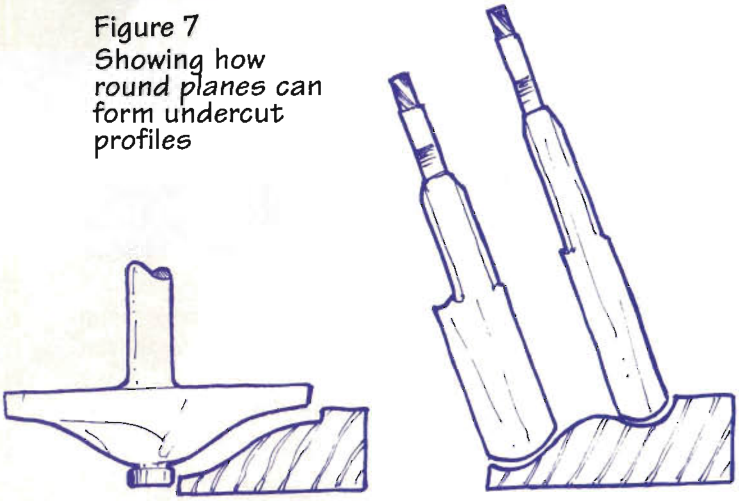
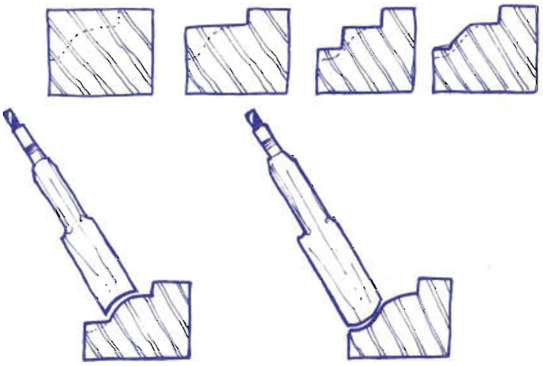


Figure 8
Stages in removing waste (with tablesaw or rabbet planes) before finishing moulding with hollows & rounds



the wood being planed. It will make your task much easier if you start with knot-free wood and plan to cut the moulding with the grain, as shown in *figure 6*. Difficult material may be worked with very sharp irons and by taking very thin shavings. Extremely hard wood is best worked with planes that have more steeply set irons.

Despite these potential difficulties the hollow or round is actually more versatile than a specific moulding plane or a particular router bit or shaper cutter. It doesn't have to match the required profile perfectly, and neither is it limited to a profile of the same width as its iron. Even undercut moldings are possible with hollows and rounds ***(figure 7)***, and the process is complemented by the use of trimming planes such as side snipes and snipesbills (special forms of rabbet planes designed to clean up the sides of steps, quirks and grooves). If you're not lucky enough to own any of these exotics, you can do much of the same kind of work with the more common, small, metal, side-rabbet planes, a double-ended version of which is still sold by Stanley™. Nevertheless, any use of the hollow or round is made easier if as

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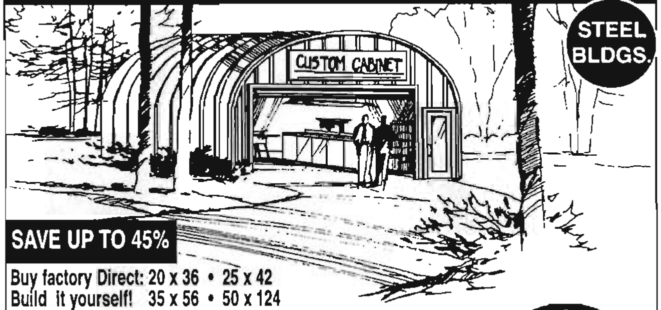

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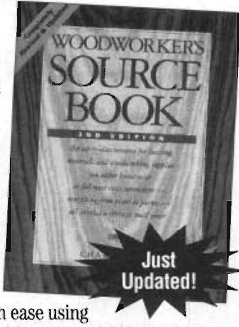

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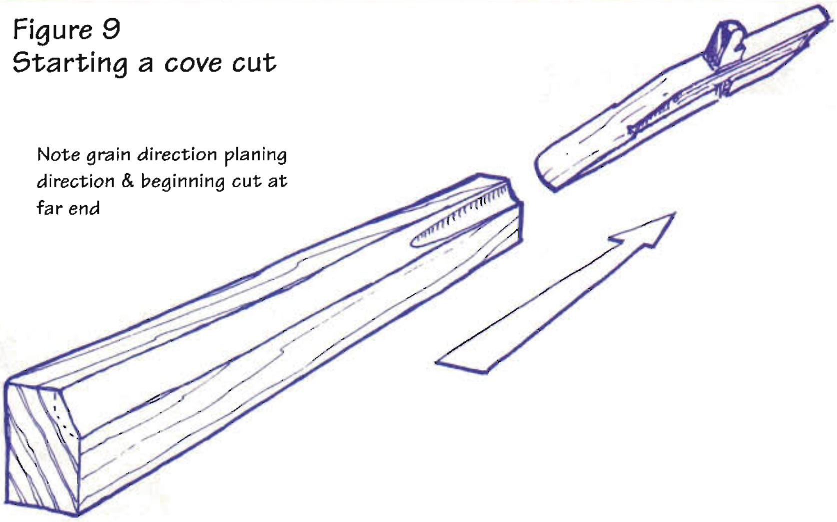
Figure 9
Starting a cove cut


Note grain direction planing direction & beginning cut at far end

much waste as possible is first removed by other guided tools *(figure 8).*

An arris may be worked directly with a hollow plane, centering the plane over the corner and holding it while working so that the lines indicating the extent of the required roundness are approached evenly. Using a round plane on an arris requires first beveling the corner so that the plane has a flat surface to start on. Using your fingers as a fence, cut a small hollow in the center of the flat at the far end of the work, as shown in ***figure** 9*. If you mark a line down the center of the flat first, guiding the plane along this line is no harder than guiding a parting tool or other carving tool along a marked line. With each successive stroke start further back until the entire length is under the plane. By varying the angle at which the tool is held, you'll be able to approach one or the other lines marking the extent of the required hollow.

Since hollows and rounds can be used to form round-overs and coves of various sections it should be obvious that they can be used to trim similar sections of other profiles (***figure** 10*). A small hollow plane, for example, is an excellent tool for repairing or trimming a beaded edge and can be used where continued use of the beading plane would be prohibited by virtue of its quirk. As to which sizes work best for any given profile, preference will vary with experience. And remember, holding a round plane skewed to the line of work will increase the width of the hollow being cut, just like passing a piece of wood diagonally over the tilted blade of a table saw. PW

***Graham Blackburn** is a contributing editor to Popular Woodworking who builds furniture and writes about woodworking in Woodstock, New York.*

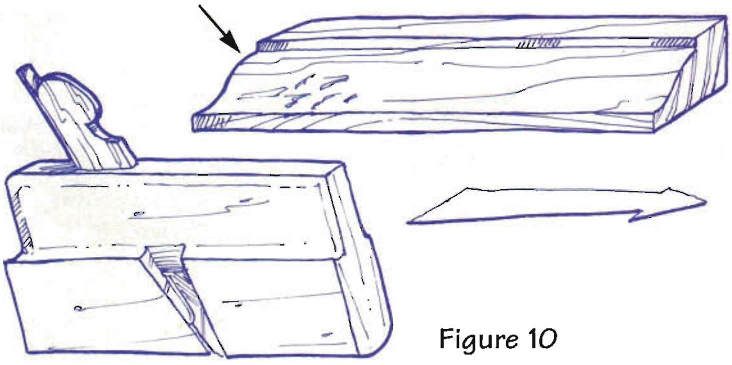

Tearout at section of reverse grain
Moulding originally formed in this direction (with the grain)

Figure 10
Hollow plane used to repair tearout caused by section of contra-grain in prepared moulding

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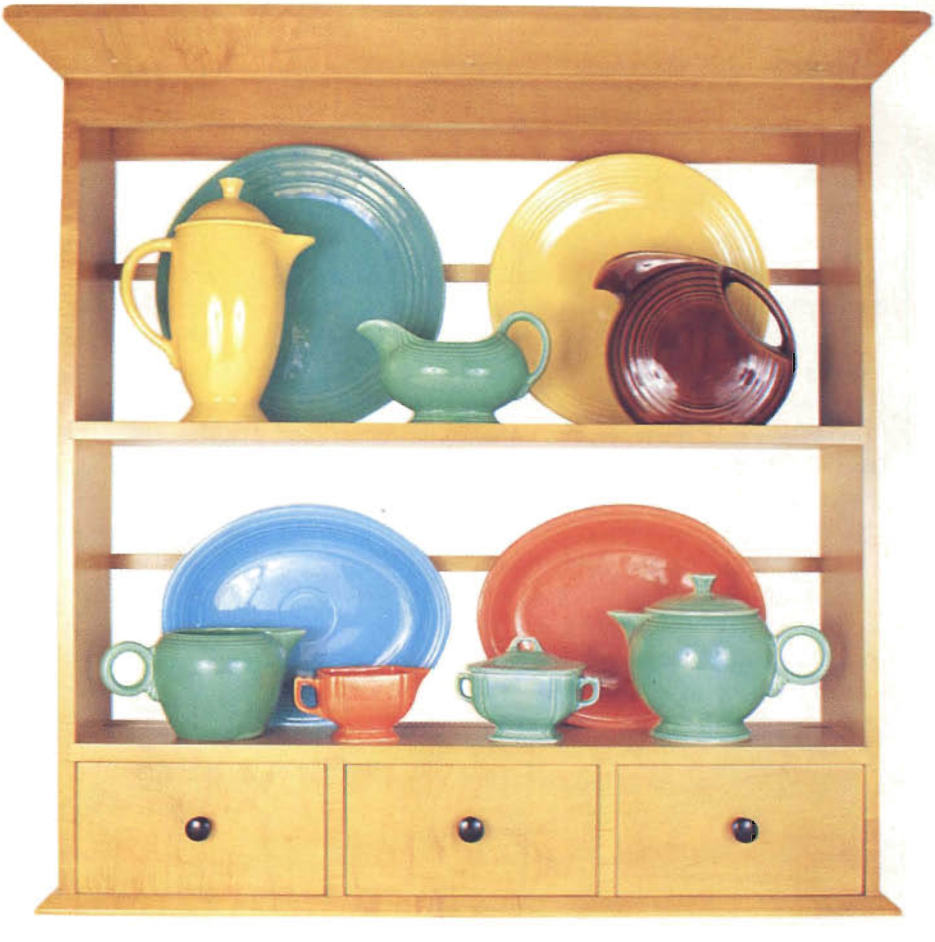
Curly Maple Country Wall Shelf

A table saw, router and a few basic hand tools are all you'll need.

By Steve Shanesy



There are many reasons for the current popularity of country furniture. It not only reminds us of simpler times, but its casual elegance helps produce a friendly, informal setting where we can relax and retreat from the hustle and bustle of our busy, modern world. But these country-inspired styles hold additional appeal for the cabinetmaker, especially those of us with limited time and machines, because like their original antique cousins, country pieces are relatively simple to build with basic tools.

Country cabinetmakers of the colonial era might have been farmers with time on their hands in the winter months. Not being professional tradesmen like their city counterparts, the country cabinetmaker combined simple joinery and a modest assortment of tools to build the furniture for his home. Although I used a table saw and router in constructing this wall hung shelf, it's not difficult to imagine doing all the work with a hand cross-cut and rip saw, a chisel or two and a couple of basic hand planes.

With a nod to the past, I included an element or two that puts this project in the antique reproduction category, such as using cut nails and not only dovetailing the top rail and drawers, but using a bevel-edge drawer bottom as well.

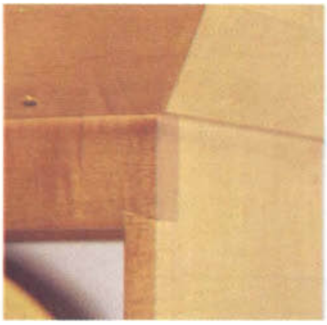


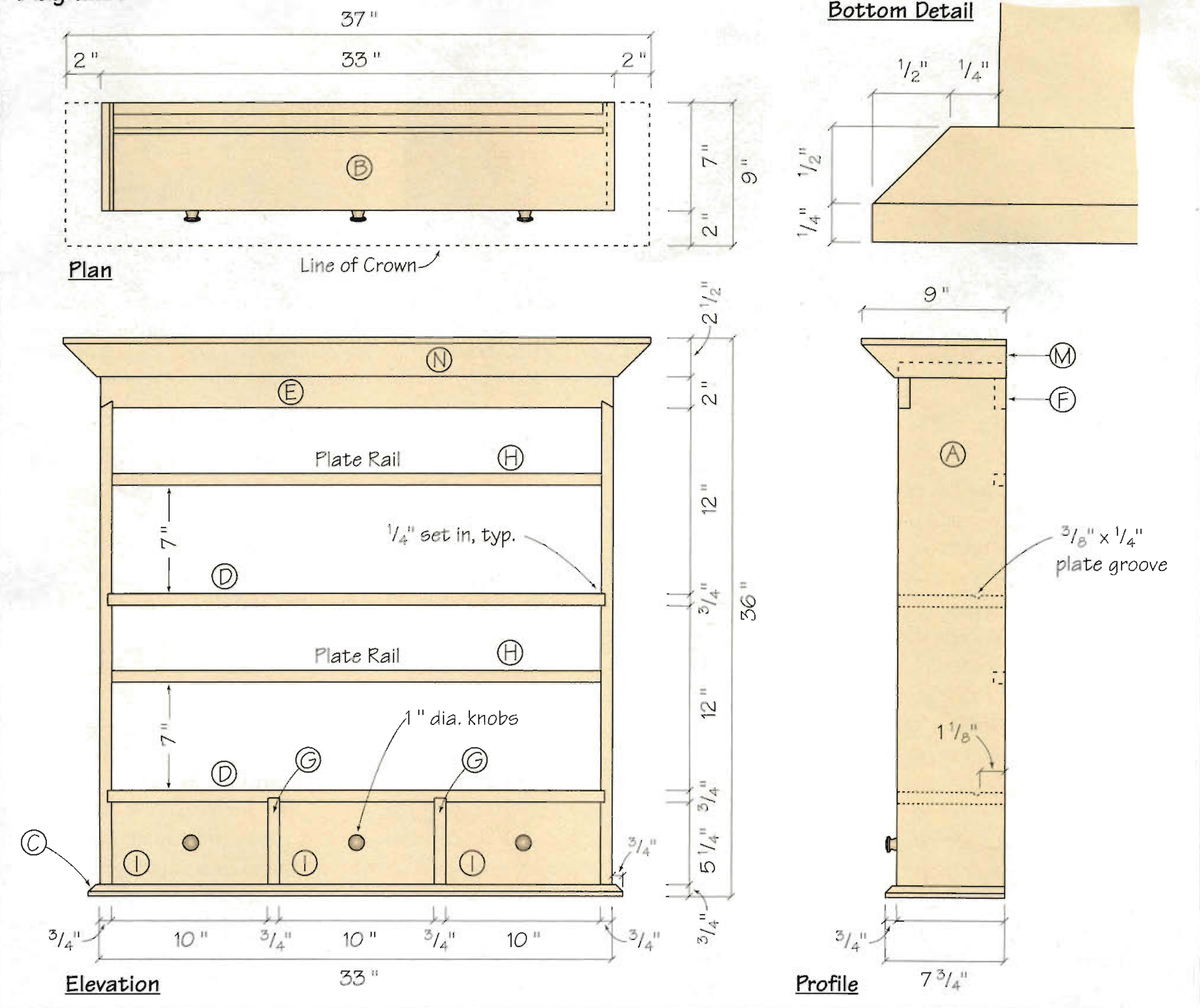
***Photo 1** The assembled dovetail on the top rail joining the case side. The top edge, hidden by the crown, was not dovetailed, but simply nailed to the side.*

Prepare the Stock

Although it's expensive, I selected curly maple, because little wood is required for the project. Cherry or even poplar would also make good choices. And since figured woods such as curly, fiddleback or tiger maple are expensive, I mixed in regular maple in the places where the wood really wouldn't be seen. And, I used a less expensive secondary wood for my drawer sides, back and bottom.

Before starting in the shop, I made up my cutting list. I always

Diagram 1



begin with an accurate, detailed cut list, which was especially helpful in laying out the cutting of the three curly maple boards from which I had to get all my pieces. I was able to plan where the best figure would be showcased in the project and make sure grain direction was balanced and pleasing to the eye.

Since the maple I bought was already surfaced to ¾", the only rough preparation required was to straighten the edges on the jointer. I then cut all my pieces to width and length according to my cutting list. I did, however, put off cutting the crown molding miters and drawer fronts until the case was assembled. As with all projects, cut like parts on the same set-ups to maintain consistency and accuracy. Just remember that you'll have rights and lefts, ups and downs, as you proceed through your cutting.

Schedule of Materials   Wall Shelf

No.	Letter	Item	Dimensions	Notes
☐ 2	A	Sides	¾" x 7" x 33¾"	Rabbet top edge, dado for shelves
☐ 1	B	Top	¾" x 7" x 32½"	Rabbet two long edges
☐ 1	C	Bottom	¾" x 7¾" x 34½"	
☐ 2	D	Shelves	¾" x 7" x 32"	Run plate groove before assembly, dado bottom shelf for drawer partitions
☐ 1	E	Front Rail	¾" x 3" x 33"	Half dovetail to sides
☐ 1	F	Back Rail	¾" x 3" x 31½"	
☐ 2	G	Partitions	¾" x 5½" x 7"	
☐ 2	H	Plate Rails	¾" x ¾" x 31½"	
☐ 3	I	Drw. Fronts	¾" x 5 3/16"x 9 15/16"	
☐ 6	J	Drw. Sides	½" x 5 3/16"x 6⅛"	
☐ 3	K	Drw. Backs	½" x 4 11/16" x 9 15/16"	
☐ 3	L	Drw. Bottoms	½" x 6 1/16"x 9⅜"	
☐ 2	M	Side Crn. Mld.	¾" x 3" x 9"	
☐ 1	N	Frnt. Crn. Mld.	¾" x 3" x 36¾"	
☐ 3	O	Wood Pulls	1" diameter	

Photo 2 *Before assembly, the plain maple bottom is edged with curly maple then chamfered using a router.*

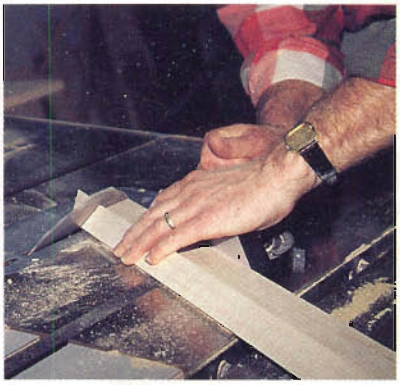


Photo 3 *The crown compound miter is cut on the table saw. Tilt the blade to 30° and the miter gauge to 35°.*

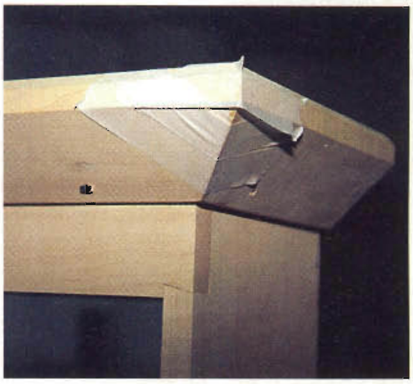


Photo 4 *A simple method for "clamping" the crown when gluing is using masking tape—just pull it tight over the joint.*

Mill the Joints

Before leaving the table saw, I cut my ¾" x ½" deep rabbets on the top ends of the two side pieces and on the long edges of the top piece using a dado set. I then made my ¾" x ¼" deep dado cuts in the sides (to hold the two shelves), and on the bottom side of the lower shelf (to house the two verticals that form the partitions between the three drawers).

Before assembly, I routed a "plate groove" ***(see diagram 1)*** on each shelf top surface, and hand-cut the dovetails and pins for the top front rail where it joins the sides (the back rail butts to the sides and is nailed in place). Since the front rail extends to the top rabbet, only the bottom half of the dovetail required cutting ***(photo 1)***.

Part of my stinginess with the curly maple included making the bottom from regular maple, which I edged with one inch wide by ¾" thick curly maple. An added benefit was that no end grain showed on the bottom and the curly grain is especially striking with the bevel detail ***(photo 2)*** on the sides and front. When gluing the edges, a spline or biscuit is required for the end grain of the bottom but unnecessary for joining the long grain to long grain front edge. It's important to rout the bevel detail before assembly.

Assemble the Case

Unless you want to hold parts in place while assembling, clamps are not required, since all joints are nailed using the antique-looking square cut nails. In fact, you could make a case for eliminating glue as well, but gluing is an old habit of mine that's hard to break.

First assemble the lower shelf and drawer partitions. Since these are nailed from the top down, it's easier to swing a hammer now rather than when it's assembled with the sides and upper shelf. The cut nails are anything but delicate, and with their wedged shape, are prime candidates for causing splits. I overcame this potential hazard by drilling a pilot hole for each nail. It's also important to consider a nice spacing arrangement for the nails, rather than just accepting arbitrary, approximate locations (Just because you're using nails doesn't mean it's not furniture!).

The sides, shelves and top came next. Each was set in its dado or rabbet and nailed. I then attached the front top rail in its dovetail and nailed it where it sits in the rabbet of the top. I likewise nailed the back rail in its rabbet, and also nailed it through the side. With this complete, I was then able to turn the piece upside down to set the bottom in place and nail it. I used two nails each for the sides and drawer partitions. Again, I drilled pilot holes for each nail.

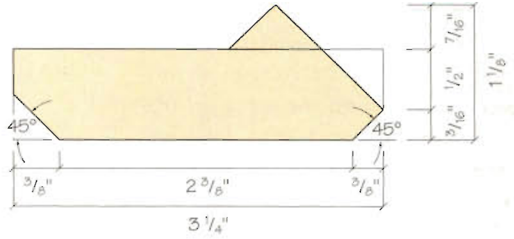
Make and Attach the Crown

Everything having to do with the crown molding was done on the table saw. Its shape was made by simply making two 45° angle cuts, one for the bottom and one for the top ***(diagram 2)***. Before cutting, however, I laid out the profile of the crown and quickly concluded that an extra triangular shaped piece would be needed on the backside to create sufficient flat to nail it easily to the case. This was accomplished simply enough by cutting an equilateral triangle with ¾" legs. This was glued (not nailed) in place so that it lined up with with angle cut on the bottom edge .

After cutting the angles on the long edges of the board (giving the crown its final profile), I cut the compound miters where the sides of the crown meet their corresponding front. This was accomplished easily enough on the table saw by setting the blade to a 30° angle and the slot miter gauge to 35° ***(photo 3)***. With careful measurements and thoroughly thinking through the cuts (I had to be careful; it was working with the last piece of curly maple in the shop!), the crown parts were complete. To attach the crown to the case, I nailed the parts on with the bottom of the crown one inch down from the top of the case. To pull the compound miter joint together, I used a

Diagram 2

Crown Profile



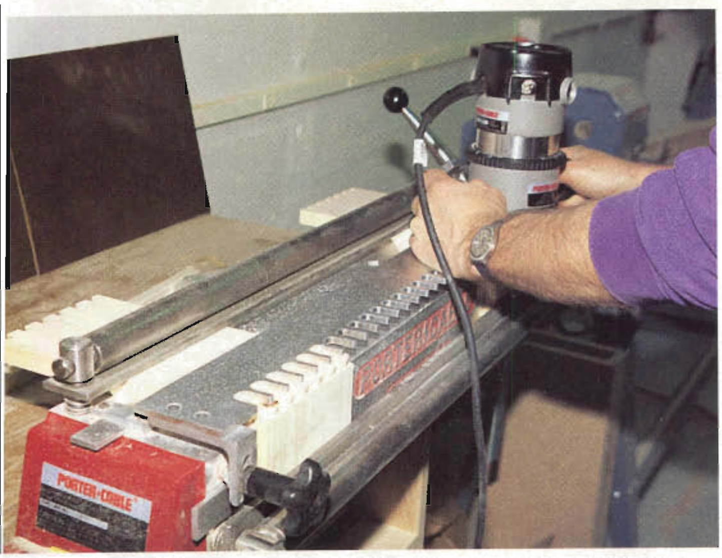


Photo 5 *Drawer sides were joined to the front and back using ½" half blind dovetails cut on a dovetail jig.*

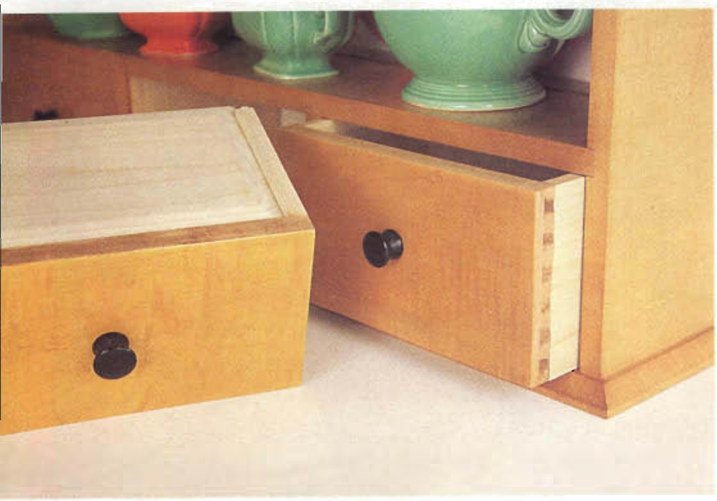


Photo 6 *The drawer bottoms are ½" thick but are beveled to slip into a ¼" groove, a traditional drawer construction method.*

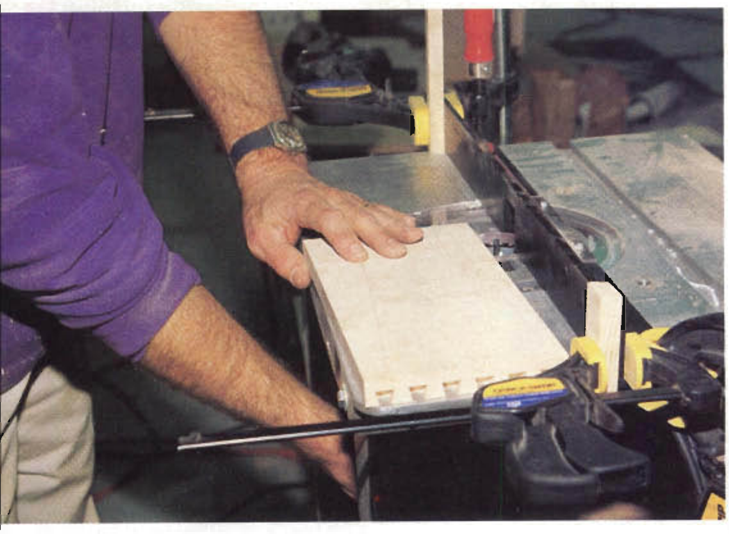


Photo 7 *A stopped groove was required on the inside of the drawer front to receive the bottom. It was cut with a router.*

few pieces of masking tape *(photo 4)* — much faster and simpler than cutting clamping cauls to just the right shape, which would be an absolute requirement if one were to use clamps to do the job.

Cut and Assemble the Drawer Parts

All three drawers are the same size. The curly maple fronts were cut from the same board and kept in sequence so that the grain matched across. The sizes provided in the cutting list are for half-inch sides, backs and bottoms with a ¾" inch front. I used half-blind dovetails for joining the sides to the front and back. If you use a different construction method, your sizes will change, except for the drawer openings.

We recently equipped our shop with a Porter Cable dovetail jig outfitted with a template for making half-inch dovetails and box joints *(photo 5)*. Although these, and most other jigs, take a bit of precise set up, they produce nice, repetitious results. For this project, I would have preferred their template that makes 2" dovetails because these would have given a more "hand cut" look. But as is, I'm satisfied with the look achieved using the half-inch template.

The drawer bottoms were made in the traditional style of a bevel edged panel *(photo 6)*. The bevel is cut in the same manner as raised panels on the table saw. Simply tilt the blade to about 15° and run the panels on edge. Calculate the fence setting so that the bevel you make fits nicely into a ¼" x ¼" groove that starts ¼" from the bottom edge of the drawer sides and front. Using half blind dovetails required me to make a stopped dado for the drawer bottom groove in the drawer front. To mill the dado, I used a router set up on the router table with a ¼" straight bit *(photo 7)*. I trimmed the back so that its width is ½" narrower than the sides, which allows the bottom to slip in from behind. The drawers are small enough to slip simply in and out of their openings with no guide system required. For pulls, I purchased turned round knobs at the local hardware store.

Finishing

Since the parts were pre-sanded to 120 grit before assembly, I picked up the sanding chore using 150 grit with the random orbit palm sander. I proceeded to 220 grit and finished sanding by breaking all the sharp edges with 120 grit sandpaper.

Since I wanted the shelf to look as if it was already a number of years old, I mixed brown and yellow aniline dye stain to give it a honey color, the approximate color a shellac finish on maple might attain after years of exposure to light. To avoid the splotchiness of maple and stain, I sprayed the aniline dye stain and immediately wiped it down with lacquer thinner on a clean rag. This evened the color for good consistency.

I topped the color with a water based lacquer that I sprayed on. After the first coat dried for about 45 minutes, I sanded it with 360 grit paper, then sprayed a second wet coat. It dried to a smooth finish. To create a little contrast, I sprayed the pulls black using black lacquer from an aerosol can and then topped them with a coat of clear lacquer.

***Steve Shanesy** is editor of* Popular Woodworking.

Collector's Coffee Table

Proudly display your small collectibles for all to enjoy.

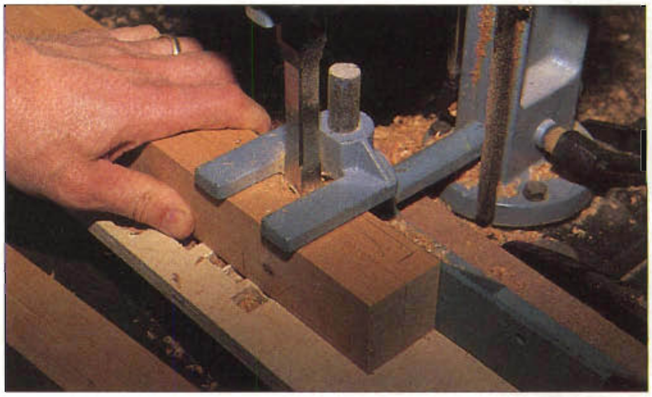
By Steve Shanesy

Whether they're matchbooks or model cars, pocketknives or postcards, memorabilia from family history, or simple reminders of shared vacations, most of our collected objects too often wind up boxed in the attic or pushed to the back corners of dresser drawers. And since it seems that just about anything can be a collectible these days, why not display your treasures? The currently popular "collector's table" is a practical and convenient way to display both your private collection and your woodworking skills.

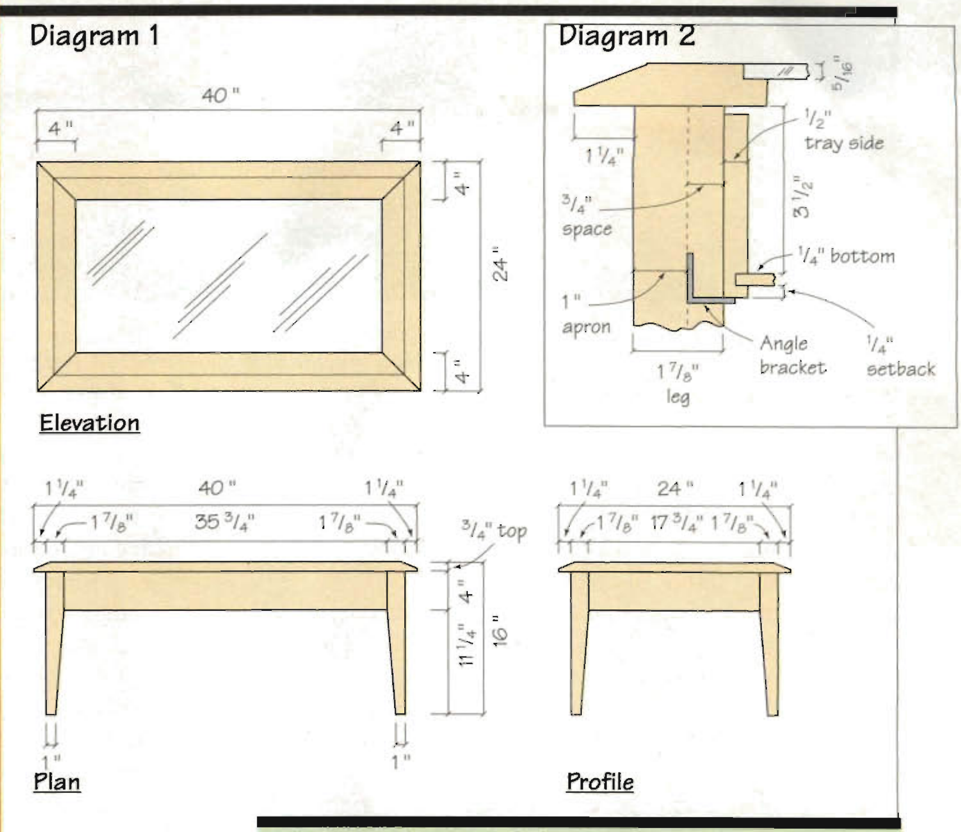
This table project can be completed in just a couple weekends. Plus, you can customize it to fit your collection. A second benefit is that it's primarily a table saw project. Although I used a bench top mortising machine and table saw tenoning accessory tool, these are not essential to completing the project.

Since my table was made with no specific collection in mind, the size was determined by simply considering a nicely proportioned coffee table with reasonable glass top display area. My table overall is 40"x24"x16" ***(diagram 1)***. Using 4"-wide stock for my top frame, my glass "viewing" area for the glass top is 16"x32". The width of the top frame is important because, simply in addition to looking right, it must be wide enough to cover the leg and apron, as well as the top edge of the display tray below ***(diagram 2)***.

PHOTO BY DICK BINSTADT PHOTOGRAPHY



At left, three generations of memories make an attractive and personal display. ***Photo 1*** *Above, cutting mortises in the table legs.*



Milling the Parts

I had enough four quarter red alder left from a previous project to build this one, but I wanted a 1⅞" leg thickness, and that posed a problem. My first task after cutting my material to rough length was gluing up the ¾" thick stock to make my legs. While these pieces were drying, I cut my other material to size *(see cutting list)*. Since I planned mortise and tenon joints for the legs and aprons, my finished apron length was the distance between the legs *plus* 1½". With the leg material dry, I squared the pieces to 1⅞" and trimmed them to their final length of 15¼". Although the legs were to be tapered in the Hepplewhite style, they first had to be mortised ***(photo 1)***. Before using the table top mortising machine, I carefully laid out which faces of the legs were to be machined and the location of each mortise. Although classified as a hardwood, alder is relatively soft,

Schedule of Materials/Collector's Coffee Table

No.	Part	Item	Dimensions	Notes
☐ 4	A	Legs	1⅞"x 1⅞"x 15¼"	taper 2 inside faces
☐ 2	B	Aprons, long	¾"x 4"x 35¼"	incl. 2, ¾" tenons
☐ 2	C	Aprons, short	¾"x 4"x 19¼"	incl. 2, ¾" tenons
☐ 2	D	Top frame	¾"x 4"x 40"	miter 2 ends
☐ 2	E	Top frame	¾"x 4"x 24"	miter 2 ends
☐ 2	F	Tray sides	½"x 3⅞"x 33½"	rabbet ends
☐ 2	G	Tray sides	½"x 3⅞'x 17"	
☐ 1	H	Tray bottom	¼"x 17 1/16"x 33"	
☐ 4	I	Dowels	½"x 1¼"	
☐ 6	J	Nesting blocks	1"x 3"x 3½"	taper top 2"

Supplies

☐ 1		Glass top	⅜"x 16⅞"x32⅞"	bevel edge
☐ 4	K	"L" brackets	½" x 2"	

Photo 2 *A table saw tenoning assessory is a safe and accurate method for cutting tenons. Since the leg and apron are flush, a precise set-up is important.*

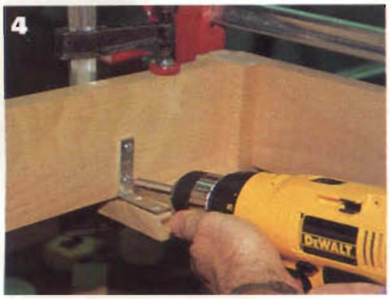
Photo 3 *The table leg inside faces were tapered on the table saw using an adjustable tapering jig (see **Make Your Own Adjustable Tapering Jig**). The easy to make jig (about 30 minutes) produces safe, accurate cuts. You'll use it on many future projects, too!*

Equipment Required:

Table Saw, Mortiser or Doweling Jig or Biscuit Jointer, Drill, Clamps.

Optional Equipment:

Table saw tenoning accessory, router with panel raising bit, bench plane, dowel centers, finish sander, HVLP finish sprayer.



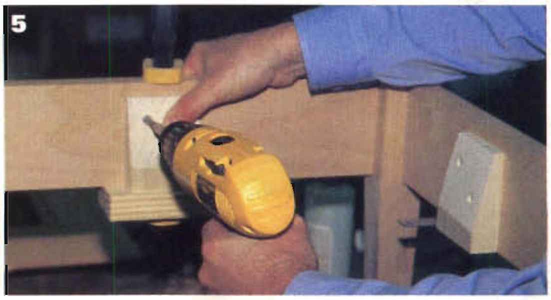


***Photo 4** "L" or corner brackets are used to support the removable display tray. To accurately postion them, clamp a block under the apron, set them in place and fasten to apron. **Photo 5** Nesting blocks keep the tray in postion. They are tapered for easy placement and removal of the display tray.*

which makes using the hollow chisel mortiser a breeze. From layout to cleaning up the mortises with a hand chisel, all eight mortises were complete in about 15 minutes. Other options for joining the legs and aprons include, but are certainly not limited to, doweling and biscuit joining.

I next cut the tenons ***(photo 2)***, paying close attention to setting up the table saw tenoning accessory. Since the aprons are flush to the legs, the set-up had to be very precise to make the waste from the tenon cheek exactly the same as the dimension from the face of the leg to the mortise, in this case, 3⁄16". After cutting the tenon cheeks, I cut the tenon shoulders square and to the exact length and depth on the table saw, using the fence and slot miter gauge in combination.

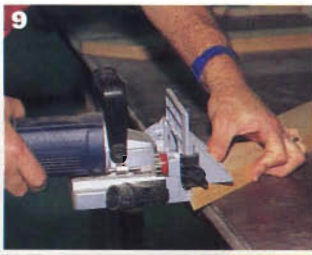
The last machining task before gluing the base together was cutting the tapers ***(photo 3)*** on each inside face of the four legs. This job was quickly accomplished using a shop built, adjustable tapering jig ***(see sidebar)***.

After dry fitting the base parts, I glued them together. When dry, I attached both the "L" brackets ***(photo 4)*** to support the display tray and the "nesting" blocks ***(photo 5)*** to position it. The nesting blocks are tapered leaving about a half inch of flat at the bottom so the tray glides easily into position.

Make the Top Frame

The top was first mitered at the ends using the slot miter gauge on the table saw ***(photo 6)***. Carefully check a test piece to make sure your cut is a true 45°. It's equally important to make sure your saw blade is set square to the saw table top. After cutting the miters, I milled the rabbet in the top inside edge of the frame for the glass ***(photos 7 & 8)***. I cut this rabbet after the miters because if done in reverse, the probability of tearing out that last little bit of material at the top of the rabbet is too great. The rabbet dimension is ½" wide x 5⁄16" deep. The width dimension is arbitrary within reason, but the depth is determined by the type of glass you choose for the top. For a great looking top, I ordered my glass with a faceted, or beveled edge. It really dresses up the piece! I learned from the glass supplier that the ⅜"-thick glass, when beveled, would have ¼" of edge thickness left. I made the rabbet another 1⁄16" deep because I like to slip pieces of clear vinyl of the same thickness under the glass in the rabbet as a soft pad. This will bring the bevel edge flush to the wood edge.

Before gluing the four-piece top together, I biscuit jointed the corners to reinforce the miter joint ***(photo 9)***. Be sure to place the biscuit slots closer to the inside corner of the joint so you don't risk exposing the hidden joint when milling the long, beveled profile on the top's outside edge. The top was then glued and clamped together ***(photo 10)***.



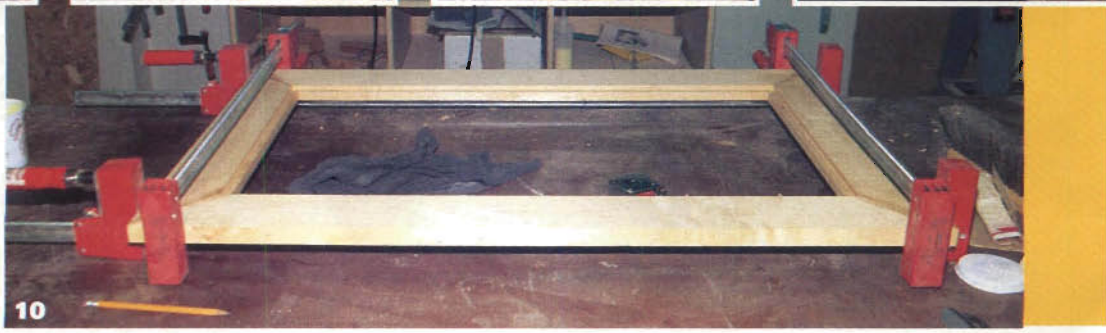
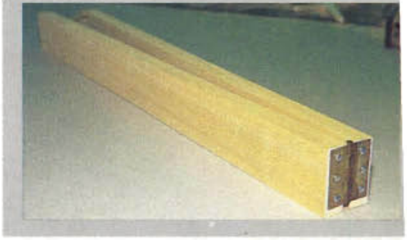


***Photo 6** Top frame miters cut on the table saw followed by the rabbet **(photos 7 & 8)** for the glass top to set in. To strengthen the miter joints, biscuits were used **(photo 9)**. The frame was then glued and clamped **(photo 10)**, checking it for square.*

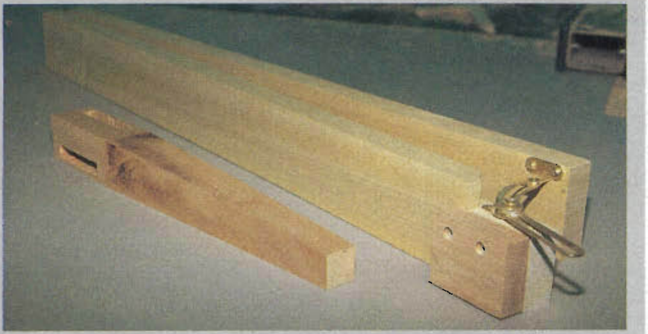
To take the headache out of cutting tapers and to add a great jig your shop collection, make this adjustable tapering jig. All you need is some scrap lumber, an old butt hinge and a lid support as an adjustment mechanism.

Make the jig long enough to taper various lengths, from coffee to longer dining table legs. The "arms" for our jig are 1"x3"x 35", a good length for most leg tapering needs.

When cutting these pieces,



Make Your Own Adjustable Tapering Jig



be sure the arms are milled straight and square. Before attaching the hinge, make any necessary preparations for the lid support. Be sure to chose a support that'll lock in place easily. We used a Brainerd™ Standard lid support, and cut a notch in one arm opposite the hinge end to properly attach it. On the ouside of that same piece, we fastened the stop block to support the work as it is pushed through the saw.

When using the jig, the thickness of the leg, the amount of taper and length of leg determine the saw fence and jig angle setting. The set-up will only take a minute and your results will be very rewarding.

I chose a long bevel for the the top's edge detail. It echoes the bevel of the glass top as well as the angular taper of the legs. To mill the profile, I used a panel raising router bit *(photo 11)*. Since this router bit was made to leave a tenon on a panel edge, I had to modify the profile by hand planing the squared off tenon to leave a long, smooth bevel *(photo 12)*. An alternative method to routing the profile would be to saw the bevel edge on a table saw, using the same procedure as raising panels on a table saw. Set the blade angle to about 15°, adjust the fence to the setting you want and run each piece on edge.

Although the top is removable by simply lifting it off, glass and all, it still needed a method to keep it in place and not slide on its base. A simple solution was employed using short dowels *(photo 13)*. I first crossed pencil lines on the top of each leg to find the center. I then drilled a ½" diameter hole about ¾" deep. Next, I placed a ½" dowel center in each of the four holes, one for each leg. After carefully positioning the top on the base so overhang was equal all around, I pressed the top down hard over each leg to dimple the underside of the top, thus giving me my exact hole drilling locations. I decided to glue the dowels in the top instead of the legs, because the protruding dowels under the top would provide a handy space for my fingers under picking it up with the glass in position. Before gluing the dowels in place, I tapered their length so that locating them in their corresponding leg holes would be a simple task.

WARNING

When operating a biscuit jointer, always turn the machine on before positioning it on the work. This safety precaution reduces the risk of the machine "climbing" up your arm. If you attempt to start it with the blade contacting the work, the possibility of climbing is much greater.

Photo 11 *Most of the top edge profile was cut using a panel raising router bit. Cut the profile in three passes since you're removing substantial material.*

Photo 12 *Because the panel raising bit left a tenon, the bevel profile was finished using a bench plane.*

Assemble the Display Tray

The display tray is basically a drawer that doesn't slide. To make it, I used ½" birch plywood for the sides and ¼" tempered hardboard for the bottom. Since my plan was to paint the tray, the colors and materials didn't matter, as long as they'd take a paint finish well. The tray is sized so it's no deeper than the aprons and allows a ⅛" clearance at the inside corner of all four legs. The joinery is simple rabbet joints on the two long sides, which are ¼" deep x ½" wide. The bottom fits in a ¼" x ¼" groove that starts ¼" up from the bottom edge of the sides. The sides were glued and nailed together, slipping the bottom in place before the fourth side was fastened.

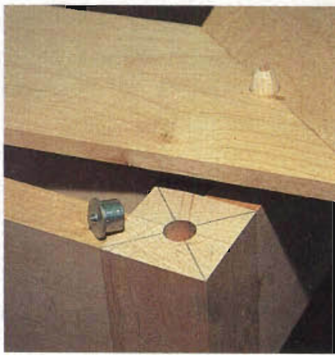


Photo 13 *Dowel centers were used to locate the mating holes which position the top on the base.*

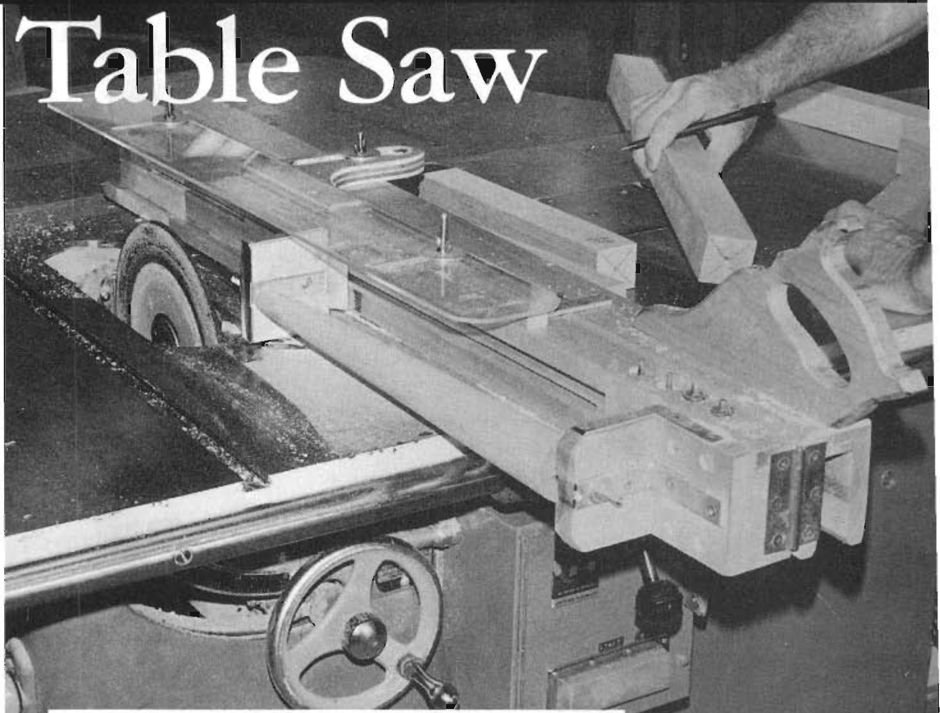
Sanding and Finishing

Alder sands easily and I used a a random orbit palm sander taking it to 220 grit. I did the same for the birch tray sides. After breaking the edges, I painted the tray with a cream colored latex paint. I wanted the tray's painted finish to remain clean and fresh, so I protected it by spraying two clear top coats of water based lacquer. This "barrier" finish will make finger prints clean up nicely, will prevent the paint from "bruising," and will keep all but the deepest scratches from marring the paint color. While clear coating the display tray, I spray finished the alder with the same water based lacquer. I used an HVLP (high volume, low pressure) sprayer that significantly reduces both fumes and overspray. I sanded the the first coat of lacquer with 360 grit paper, knocking down the raised grain and preparing the surface for a final, wet coat of lacquer.

Steve Shanesy *is editor of* Popular Woodworking.

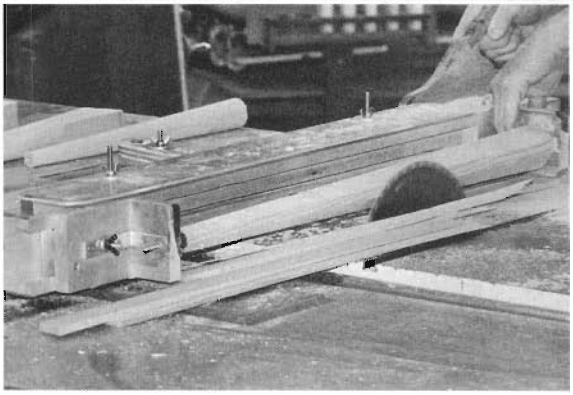
Turnings on the Table Saw

If you haven't taken the step toward a lathe, let your table saw do the job.



Many woodworkers have managed to reach a certain skill level without having to come near a lathe. Still, there are certain projects that require turning to be considered really finished. If a lathe isn't part of your shop, you probably believe that your only real alternative is to purchase a pre-turned piece for your project. However, if you would like to make your own simple turned pieces, but you aren't ready to tackle the lathe, this project will offer another alternative.

The unusual device discussed in this story was originally designed to work on a Delta 10" Unisaw, but the design can be altered to fit any table saw. The jig gives you the opportunity to perform simple turnings on your table saw. Though it wasn't designed with mass production, a set of four legs of any length and diameter can be cut and sanded in about ten minutes.



Convert square stock to round using your table saw and this jig (left). Bolt on your disk sander attachment to your saw arbor (above) and you can sand the work, too!

Making the Jig

After determining the length jig desired, cut the two sides of the ripfence tunnel *(B)* to length and slightly higher than the rip fence itself. Place a strip or two of masking tape on both sides of the saw's rip fence. Run the tape the entire length of the fence to act as clearance shims (two thicknesses of ordinary typing paper will also work). With the paper or tape in place, C-clamp the two side tunnel pieces *(B)* to the rip fence. Then cut the tunnel top *(A)* and fasten to parts *(B)* using glue and countersunk screws ***(diagram 1)***.

Lay out the jig's handle from one of your favorite handsaws. Cut to shape and carefully sand all hand-contact surfaces. You may want to chamfer or roundover the edges to make the handle even more comfortable. Secure the handle in place by countersinking two screws up through *(A)* into the handle, again using glue.

Cut the tapering arm *(C)* to length and width. The tapering arm will require a ⅜" wide groove running down the center of one 3¾" face. The groove, cut all the way through the piece, starts approximately 2" from the far end and stops 6" from the near end of the piece. Cut the groove by drilling two ⅜" holes, lay out the tangent lines between them, and use a scroll saw, coping saw or sabersaw to carefully cut the lines. Then use a file to clean the sides of the slot. Make sure the edges are smooth so the carriage bolt will slide freely without becoming snagged when adjusting the size of the workpiece.

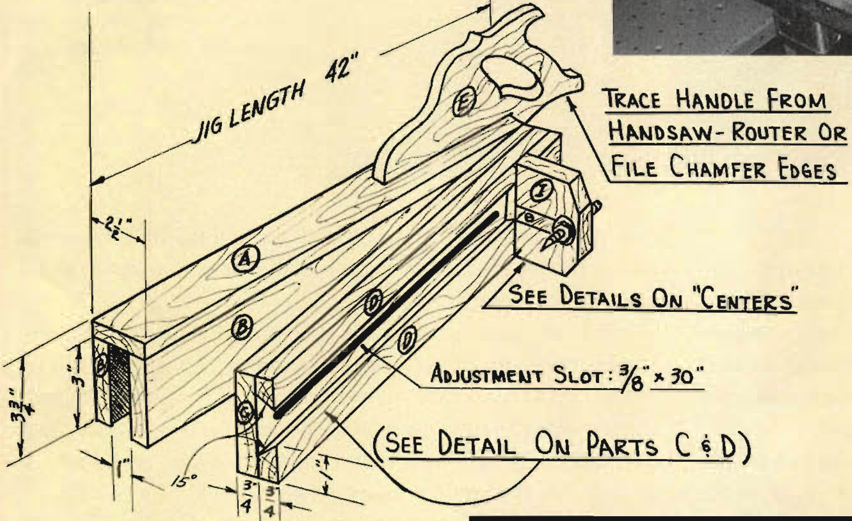
Next cut two strips *(D)* to form the dovetail channel. Each piece will have one edge beveled at 15° as shown. These are secured to the slotted part *(C)* with glue and screws. *(C)* can now be attached to *(B)* with a 3" butt hinge, preferably with a non-removable pin.

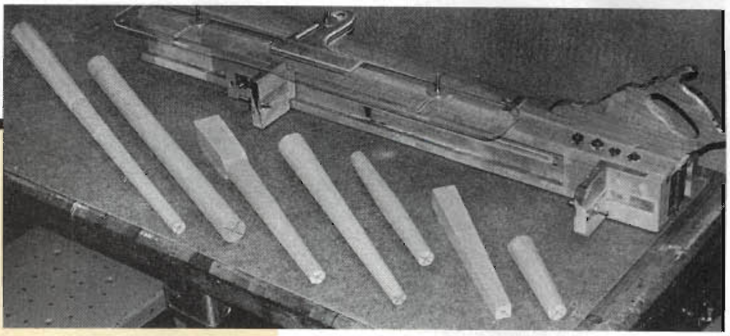
Using a good grade of ¾" plywood, lay out the angle adjuster *(F)* as shown in ***diagram 2***. This is secured to the top edge of *(C)* with glue and screws.

The angle adjuster *(F)* is attached to the top of *(A)* with a ¼"x 20 hanger bolt, washers and wing nut. (Note: A hanger bolt is half woodscrew thread and half machine thread.)

Cut out parts *(G)*, *(H)*, *(I)* and *(J)* ***(diagram 3)***, which will become the adjustable tailstock and the stationary headstock. Note the outer corner of *(I)* is beveled. Attach *(G)* to *(H)*, and *(I)* to *(J)* with woodscrews and glue. Notice that angle brack-

Diagram 1


JIG LENGTH 42"
TRACE HANDLE FROM HANDSAW- ROUTER OR FILE CHAMFER EDGES
E
I
G
SEE DETAILS ON "CENTERS"
A
B
D
D
C
ADJUSTMENT SLOT: 3/8" x 30"
(SEE DETAIL ON PARTS C & D)
2 1/2"
3 3/4"
3"
1"
15°
3/4
3/4
1/4"



Some of the many turning styles you can produce on your table saw using this jig are displayed above. These include short and long, square or round tapers, straight columns, round taper with square shoulder, and double-end taper.

ets (*M*) are cut into all the pieces to mount flush with the surface. This can be accomplished using a router table, or a dado stack mounted on your table saw. Attach all the angle irons as shown, and countersink all screws flush with the surrounding surfaces to prevent any binding. File or sand flat if necessary.

Parts (*R*) and (*S*) are similar and are pieces of threaded rod ¼" x 20, about 2" long. Insert each part in a drill press or bench mounted drill motor and, using a metal cutting file, sharpen one end to a point. If at all possible, these tips should be heat treated and hardened since they take a lot of friction wear.

If heat treating is not possible, the tips will hold up remarkably well if kept well lubricated with bar soap, paraffin wax or beeswax. Remember, these tips fit into T-nuts which will become the bearing surfaces of each end of the workpiece. Mount parts (*R*) and (*S*) through the angle braces and blocks (*I*) and (*H*) using nuts and washers as shown. Attach the four angle braces (*N*) to the blocks as shown.

Cut out two dovetail blocks (*K*). One is fastened to block (*J*), which is then fastened with glue and screws to parts (*C*) and (*D*), as shown in the drawing. The other is fastened to block (*G*) and the finished tailstock assembly is slid into the groove formed by (*C*) and (*D*) (*diagram 4*). Make sure *K* slides freely within the slot. This and other parts should be thoroughly coated with clear lacquer (several coats) or urethane for a hard slippery surface.

When assembly is complete, use steel wool and a hard carnauba paste wax on the entire sliding area. A coat of silicone lubricating spray will also help reduce friction. The underside of the tunnel portion of the jig is treated the same way. Be sure to remove any paper or masking tape from the saw fence, as these could cause binding.

Lexan provides an unbreakable shield to protect the operator. This should be purely a precaution. In all the years I've used this jig, I can't recall a single time when the workpiece flew out of the jig.

To Use the Jig

Before using the jig, set the adjustments on the saw itself, including the height of the saw blade (which, incidentally, must be sharp and have a good set), and the alignment of the rip fence,

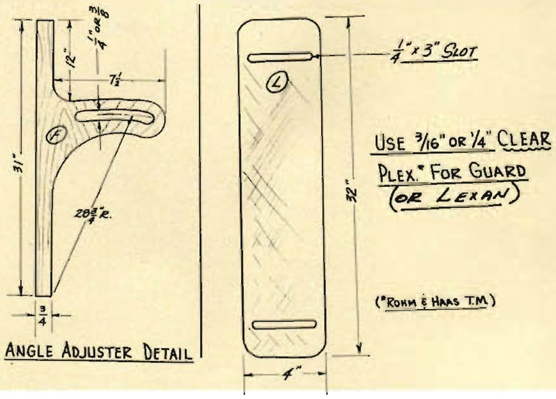
Materials List

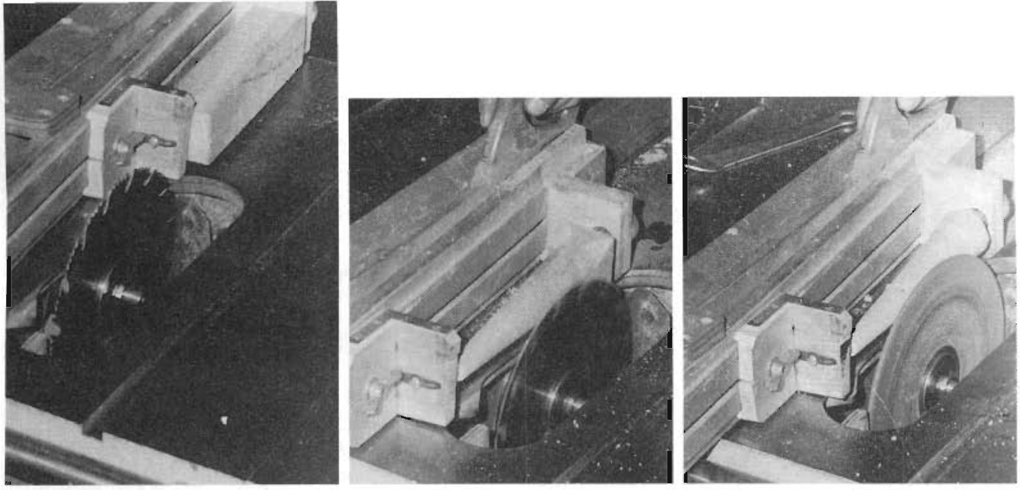
✔		Qty.	Th x W x L	Notes
☐	A	1	¾" x 2½" x 42"	Ripfence tunnel top
☐	B	2	¾" x 3" x 42"	Ripfence tunnel sides
☐	C	1	¾" x 3¾" x 42"	Tapering Arm
☐	D	2	¾" x 1" x 42"	Dovetail channels
☐	E	1	¾" material	Handle
☐	F	1	¾" plywood	Angle adjuster
☐	G	1	¾" x 3½" x 5"	Tailstock block
☐	H	1	¾" x 3¼" x 3½"	Tailstock block
☐	I	1	¾" x 3½" x 3½"	Headstock block
☐	J	1	¾" x 4¼" x 3½"	Headstock block
☐	K	2	¾" x ¾" x 4"	Dovetail blocks
☐	L	1	¼" x 4" x 32"	Lexan Shield

Hardware

Carriage bolts, threaded rod, jam nuts and washers, butt hinges, hanger bolts, wing nuts and washers.

Diagram 2





*At **far left**, the blank is chucked in the turning fixture and is ready to run. **(Center)** After several passes, the tapered round form is mostly complete. At **left**, the table saw blade has been exchanged for a sanding disk attachment that removes saw marks and sands the leg smooth.*

which must be locked down securely.

If making a tapered leg, taper the square stock prior to turning, and drill a hole in each end to accommodate a metal T-nut, which will act as a bearing surface. The workpiece is mounted between the centers of the shop-made jig. Don't forget to lubricate the turning centers with your choice of lubricant, keeping in mind that oil is not heavy enough to do the job.

Any length up to the capacity of the main jig can be set. Open the tapering arm far enough to make the taper on the size workpiece you want, making sure the blade and sander disk will clear the jig centers on both ends of the unit. The small end of the tapered leg should be at the far end, and the wider diameter at the near end.

Diagram 3

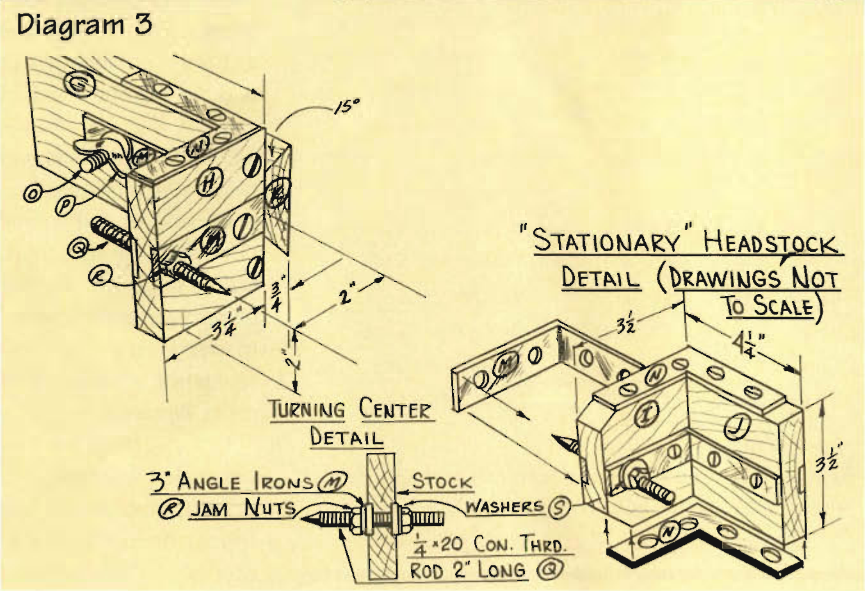
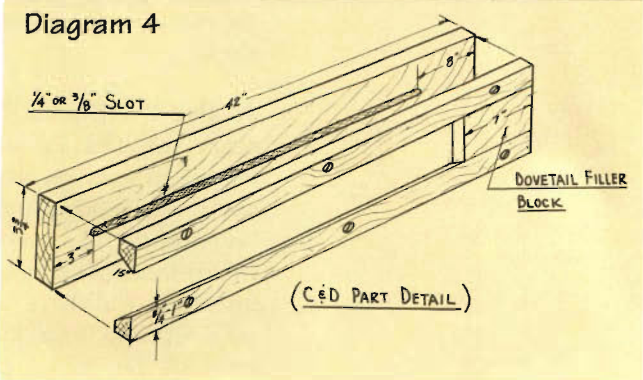


Diagram 4



The same process holds true for cutting cylinders. Make the square block into an octagon, then permit it to spin around by the blade. In each case the workpiece will have to be moved slightly with the saw fence, closer to the blade or sanding disk for best results. Remember, don't force the work, and don't try to push too fast. Let the saw do the work.

When cutting a stop taper, set up a block or some sort of accurate mark to shoot for. When you reach that point, turn off the saw and remove the workpiece. When cutting a reverse taper (narrow at both ends and thick in the middle) follow through and make the first cuts and sand these. Then turn the workpiece end over end and cut the other half of the reverse.

You may want to make a wedged shaped push stick to act as a kind of brake to slow down the speed of the turning workpiece. One has to remember that a table saw blade turns at about 115 miles per hour. The workpiece as a result can spin quite fast, but if properly mounted between centers, there is little danger the workpiece will come off. Remember, be sure to review your basic saw safety rules: Stand to one side, not directly in line with the workpiece. Wear your goggles. Know where your hands and fingers are in regard to the saw blade. Use only sharp saw blades and work slowly. Don't force your work. PW

***Don Kinnaman** is a retired shop teacher and woodworker who lives in Phoenix, Arizona.*

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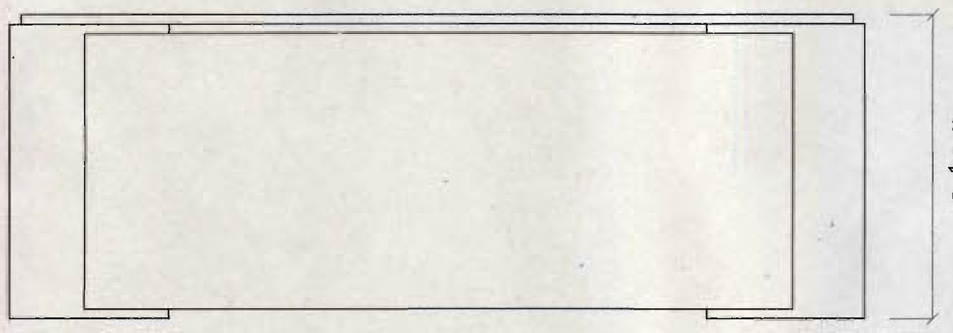
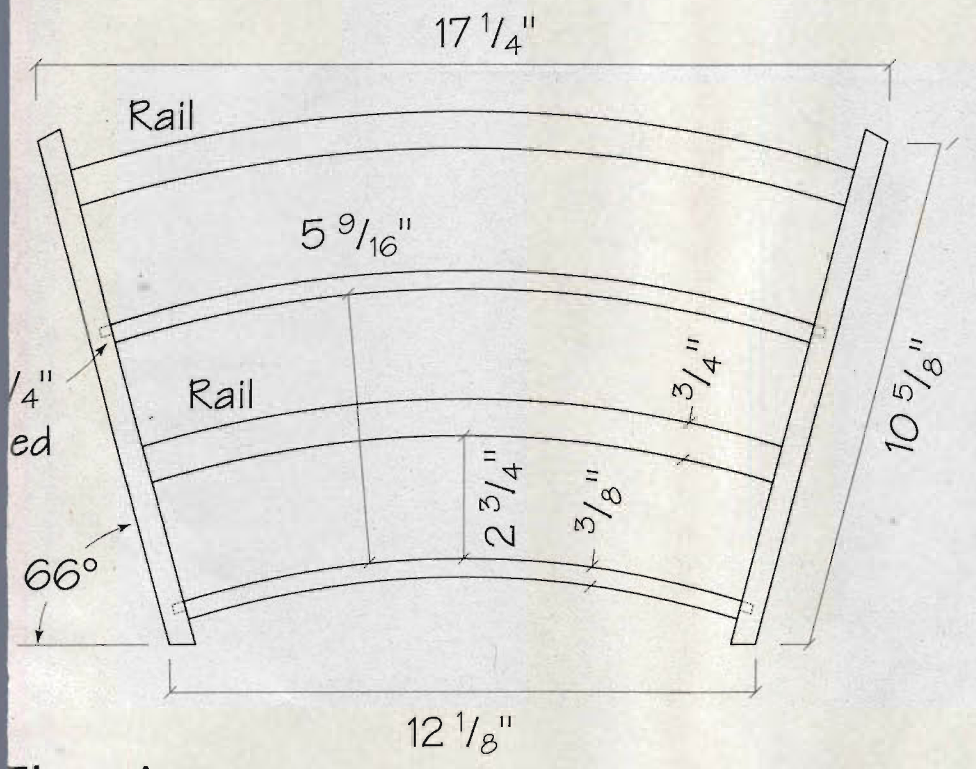
Popular Woodworking®
PullOut™ Plans

- **Porch Swing** from pg. 41
- **CD Rack** from pg. 46

arefully open staples to remove plans, then bend them closed again.



Plan



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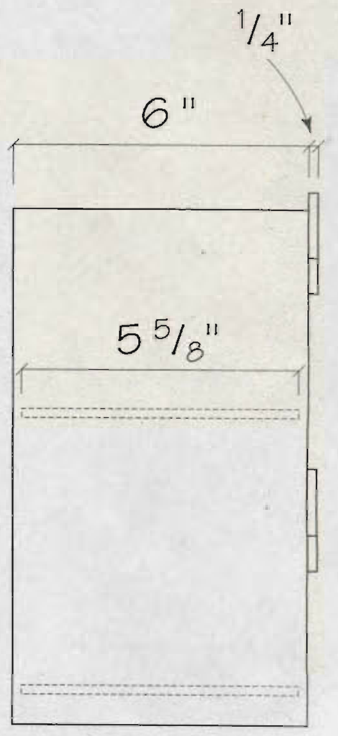
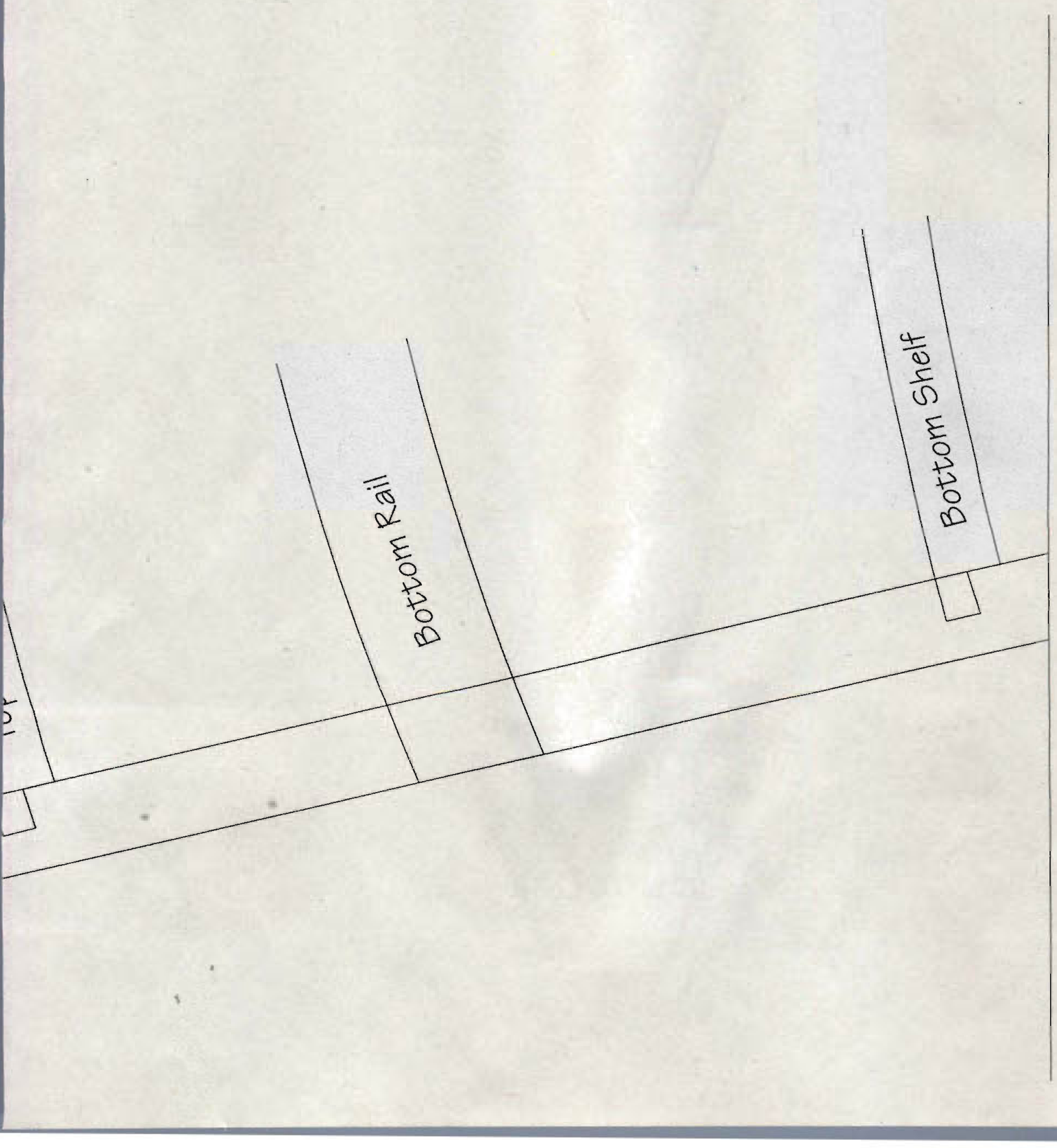
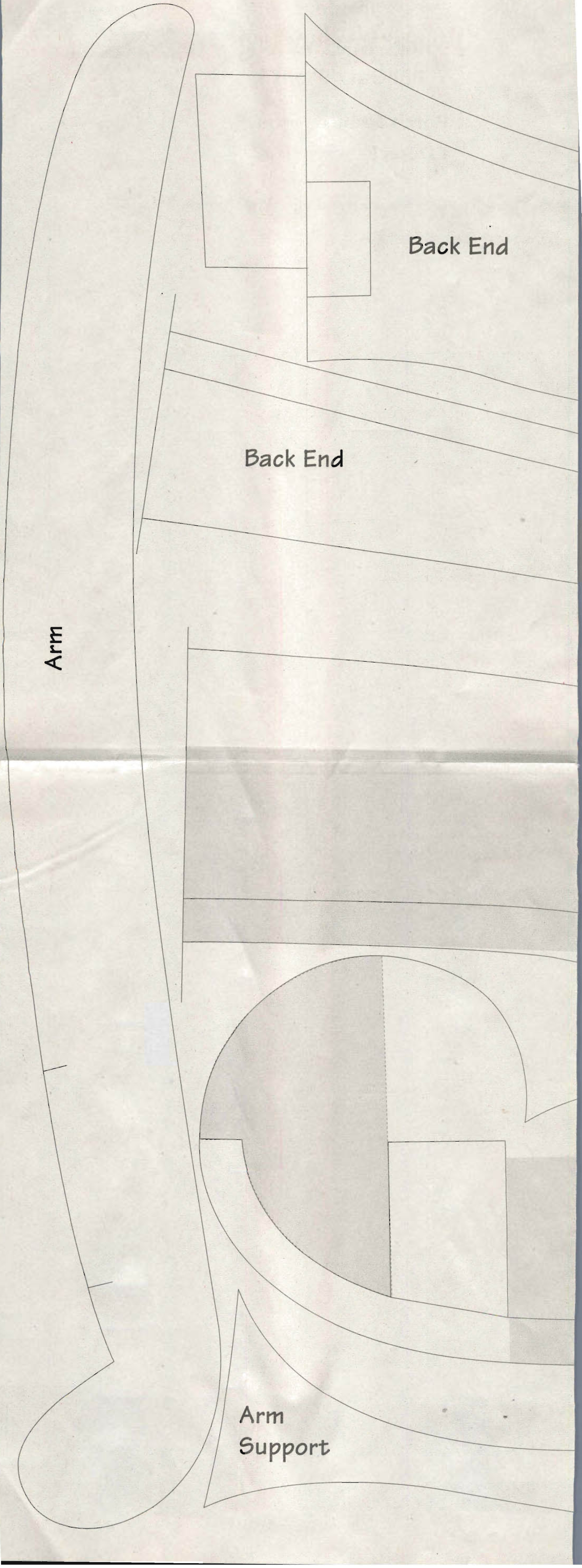
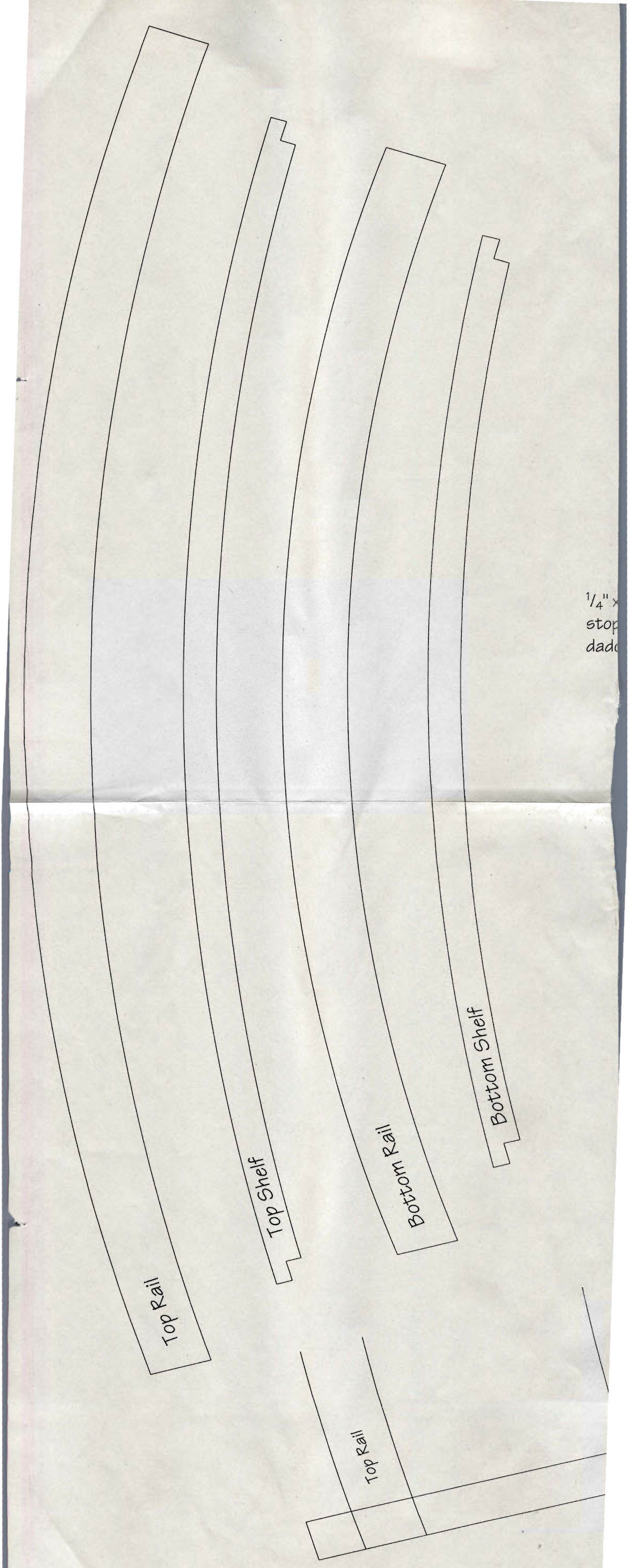


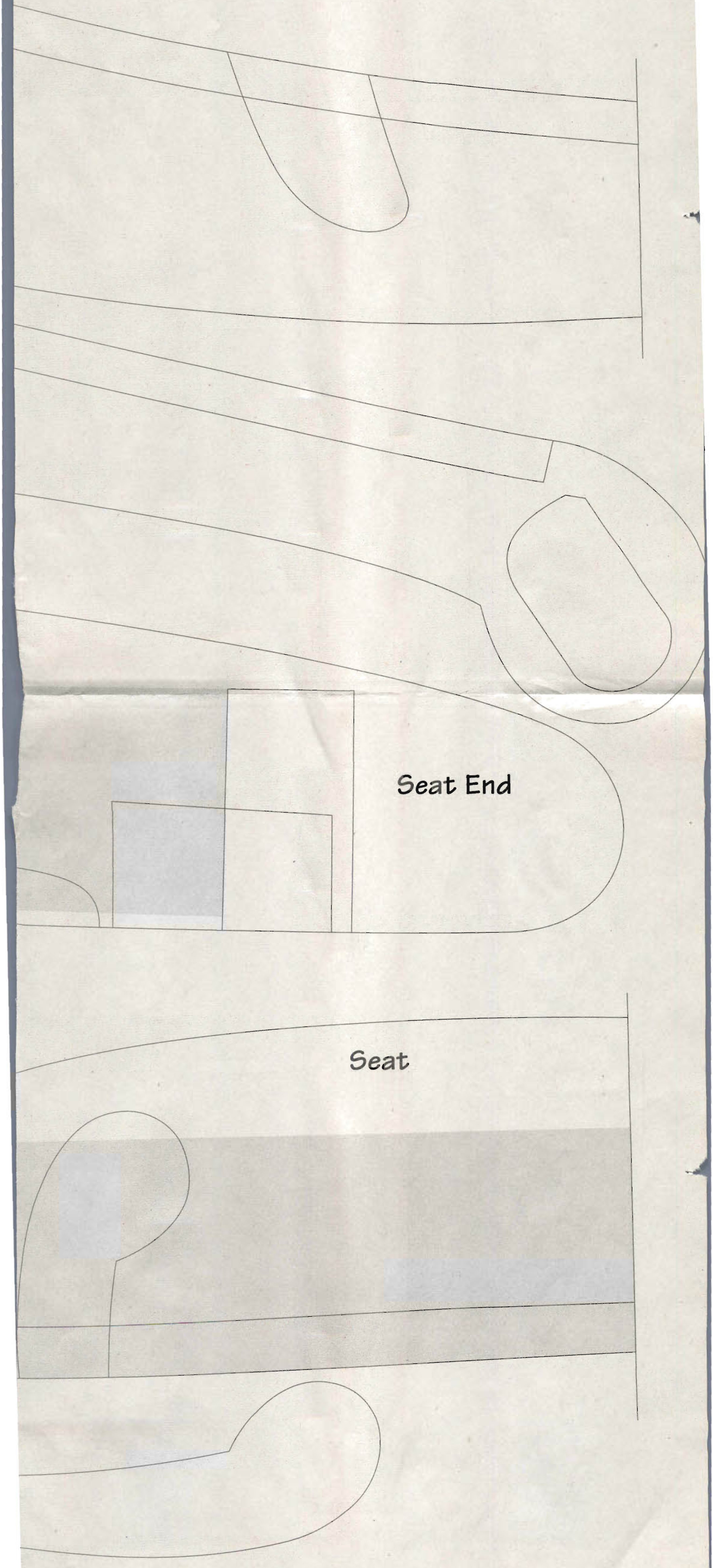
Profile



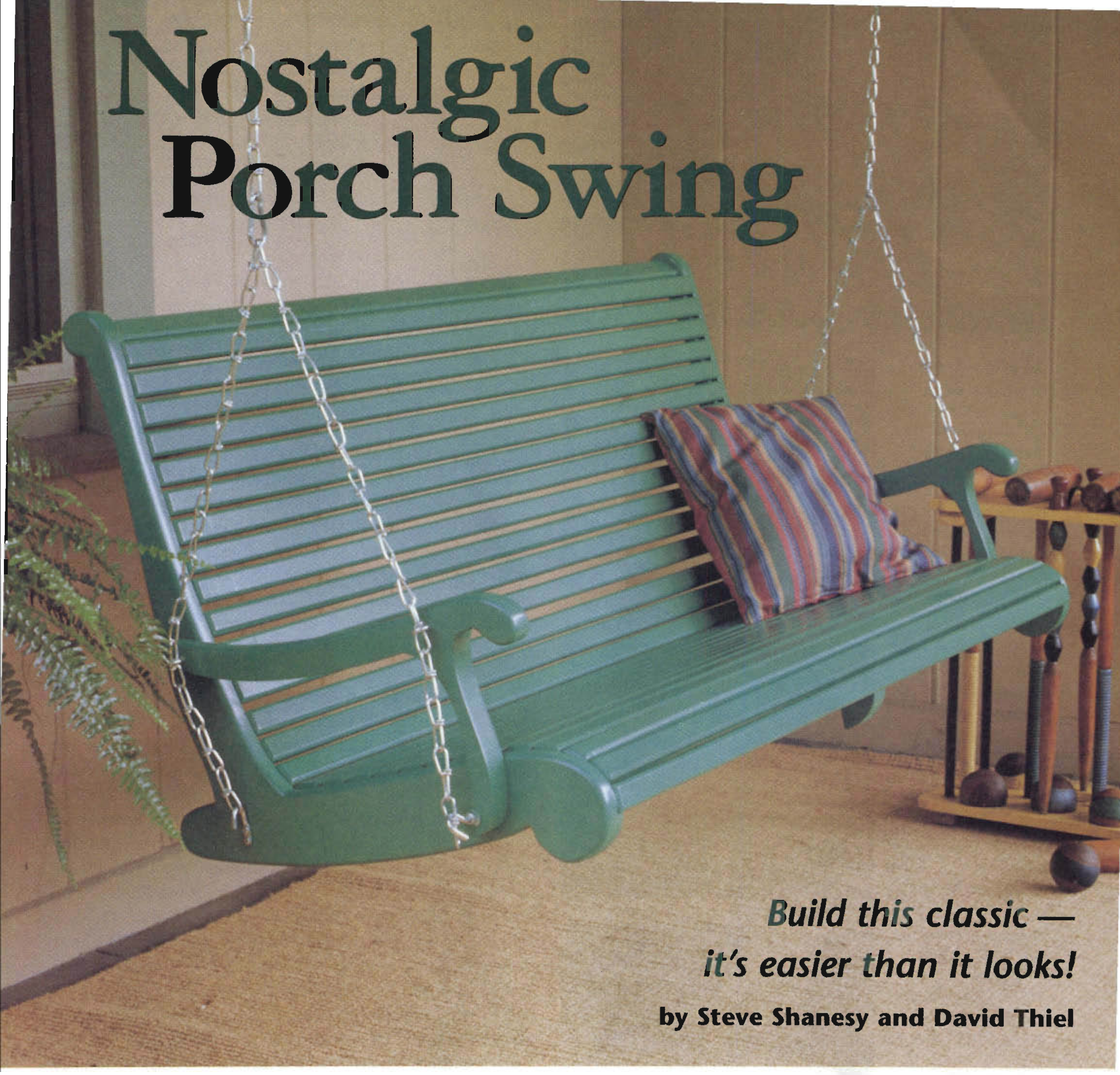

Back End
Back End
Arm
Arm
Support



Top Rail
Top Shelf
Bottom Rail
Bottom Shelf
Top Rail
1/4" x
stop
dadc


Seat End
Seat

Nostalgic Porch Swing



Build this classic — *it's easier than it looks!*

by Steve Shanesy and David Thiel

PHOTO BY DICK BINSTADT PHOTOGRAPHY

Indian Summer is the perfect time of year to sit on your porch swing watching the leaves turn as summer slowly slips away. You say you don't have a porch swing? Well, there's still time to build one!

We've come up with a design that will be the envy of your neighbors, and this swing will last a lifetime. Thinking economically, we chose poplar, since it provides excellent strength and stability, yet keeps the price for the project at an acceptable level—about $100 *including* all the hardware and paint!

Because of the sweeping curves used for the sides, there is a certain amount of template work to be done. We've included full-sized plans for these pieces in the PullOut Plans™ section, which should take the head scratching out of this project. The first step in constructing the swing is to use these plans to cut out the shapes for the seat ends, back ends, arms, arm supports, seat center support and the slat support block. If you have access to a planer, the lumber for these pieces should be run to 1½" thickness, if not, 6/4 surfaced lumber can be purchased from you local hardwood lumber supplier. There may be some measurement adjustments necessary, but it shouldn't affect the overall design.

There are a couple of options available for shaping the parts to match the plans. We've shown three options in the sidebar ***Duplicating with Templates.*** The method you use will be determined by the equipment in your shop.

You will note that the tenons for the back ends are shown with a dotted line inside the darker line on the plans. This is so the rough size and angle of the tenon can be determined. The finished tenon should be made after the mortise is cut to ensure a snug fit.

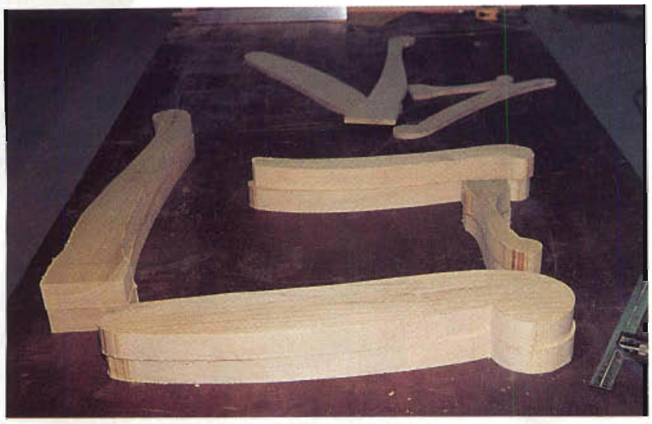


***Photo 1** The pieces that will form the ends of the swing have been shaped to match the templates from the PullOut Plans.*

Tools Used, Not All Required

Table saw, bandsaw, spindle sander, router, random orbital sander, ⅜" drill, doweling jig, ⅜" roundover router bit, ½" x ½" rabbet bit, champher bit, ½" drill bit, dowel centers

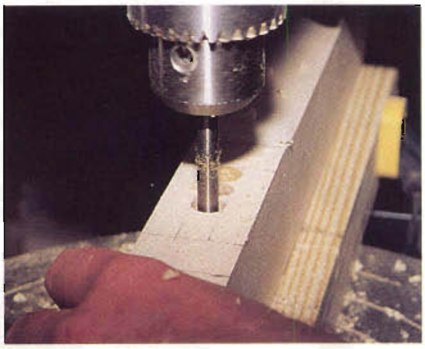


***Photo 2** A ½" bit chucked in the drill press is used to chain drill the mortise in the seat end removing most of the waste. Although a standard twist drill will work, a brad point spur or Forstner bit is better.*

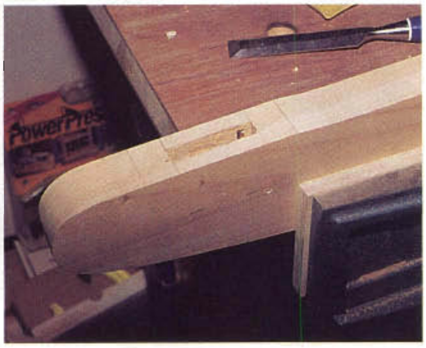


***Photo 3** The mortise is then cleaned up and squared by hand using a chisel. This hand work cleans up the cheeks and bottom giving this half of the joint its accurate dimension.*

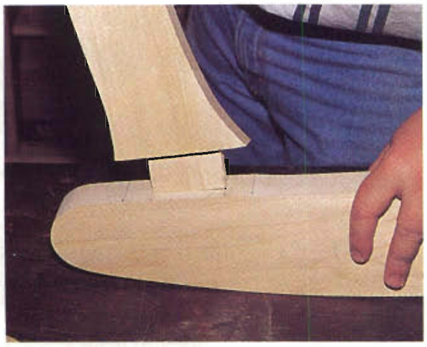


***Photo 4** Before gluing, the back and seat end pieces are dry fit. Looks like the mortise and tenon are a good fit!*

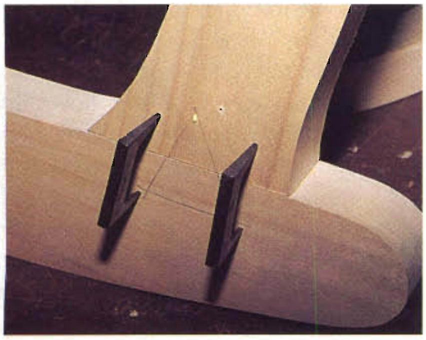


***Photo 5** Pinch dogs were used to pull the joint tight. Though this leaves small holes in the work surface, it avoids the difficulties involved in clamping curved and angled surfaces. These inexpensive tools are extremely handy in many situations.*

Once your pieces are shaped ***(Photo 1)***, the next step is to cut the two mortises in the seat sides. Since there are only two, we decided to cut them by hand. Begin by laying out the location for the ½" wide x 2" long mortises as located on the PullOut Plans. Drill out the mortise using a ½" bit (a Forstner or brad point spur bit is ideal) in a drill press ***(Photo 2)***, then chisel to a depth of 1½". A beautiful mortise isn't critical because the shoulder of the tenon will hide minor imperfections, so if you've been waiting to try a hand-cut mortise, this is your chance ***(Photo 3)***. They should take about 15 minutes each.

Once the mortise is finished, use the PullOut Plans to locate the tenon on the back ends. Cut the tenons a little oversized on the bandsaw to allow fitting. The shoulders are the most critical part of this step, and may require some judicious fitting ***(Photo 4)***.

When satisfied with your tenon fit, sand the pieces as necessary to 120 grit. Now, glue and clamp the sides. You may have difficulty clamping these pieces due to their angles and curved nature. We benefited from our painted finish by using pinch dogs to pull the joint together ***(Photo 5)***. If your finish is clear, you may require a clamping caul to put pressure in the right places.

The next step is to attach the arm supports to the arms using ½" dowels ***(Photo 6)***. Once again the placement for the supports can be copied from the PullOut Plans. We used a doweling jig to locate the centers of the ends, and once drilled, glued and clamped the pieces and set them aside to dry.

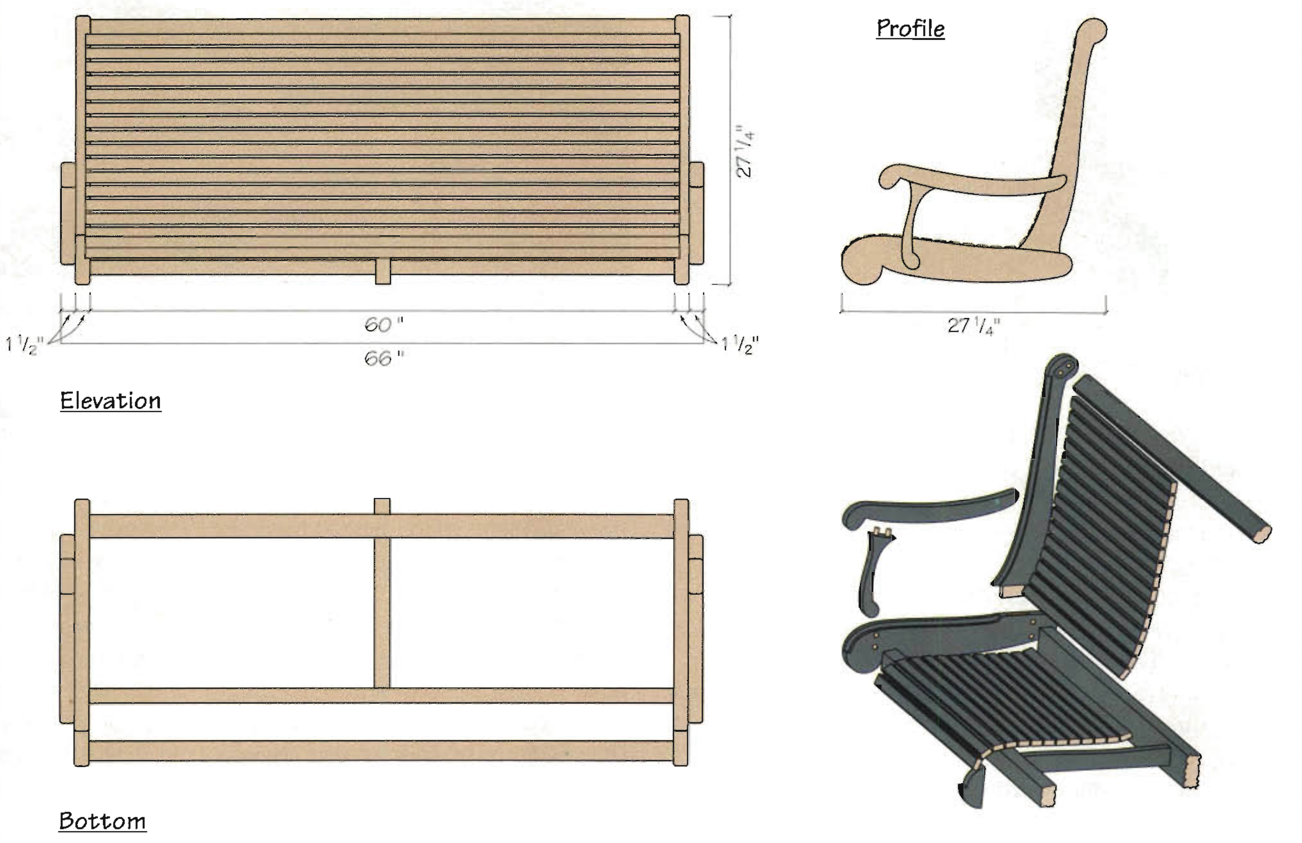
There are two routing steps necessary for the sides. A ½" x ½" rabbet must be cut on the top inside edge of each side for the seat slats. Again, the position of the start and stop point for each rabbet is indicated on the PullOut Plans. We used a ½" x ½" rabbet bit with a pilot bearing to make the cut. The bit leaves rounded stop and start points, so it's necessary to square these up with a chisel ***(Photo 7)***.

The second routing step is a ⅜" roundover to soften the edges of the sides and arms. We decided not to run all the edges with this profile. We ran the entire outside edge and the top "ball" on both edges for the sides ***(Photo 8)***. On the arms, only the top inside and outside edges were run.

Once you've finished these routing chores, set these pieces aside and move to the rest of the swing frame. Cut the seat's center support, rear and front stretchers and the back top stretcher according to the materials list. While at the saw, set the blade to 12° and cut the top edge of the front seat stretcher at this angle. Once cut, the bevel will allow the seat slats to lay in the end rabbet without running into the previously squared edge of the front stretcher.

The back top stretcher has roundover router passes on three of the long edges. Again, use the ⅜" roundover bit with the

Diagram



pilot bearing. The other edge has an ⅛" chamfer where the fourth long edge meets a back slat.

The next step is to locate the positions for the ½" dowels used to join the seat frame and top stretcher to each other and the sides. First drill dowel holes in both ends of all four pieces *(Photo 9)*. Don't worry about matching the locations in the sides at this time.

We used a set of dowel centers *(Photo 10)* to locate the positions for the dowel holes in the front and rear seat stretchers and in both sides. Again, the PullOut Plans indicate the stretcher locations. Start with the middle seat support, which runs between the front and rear seat stretchers. Make the seat support flush to the top of the front stretcher, and flush to the bot-

Schedule of Materials

✎ No.	Letter	Dimensions	Item
☐ 2	A	1½" x 6" x 25"	Seat ends
☐ 2	B	1½" x 5" x 28"	Back ends
☐ 2	C	1½" x 3½" x 21"	Arms
☐ 2	D	1½" x 3½" x 11"	Arm supports
☐ 1	E	1½" x 3½" x 15 13/16"	Seat center support
☐ 1	F	1½" x 3½" x 60"	Seat rear stretcher
☐ 1	G	1½" x 3" x 60"	Seat front stretcher
☐ 1	H	1⅛" x 2" x 60"	Back top stretcher
☐ 1	I	1½" x 4⅜" x 2¼"	Slat support block
☐ 24	J	⅝" x 1¼" x 61"	Seat slats

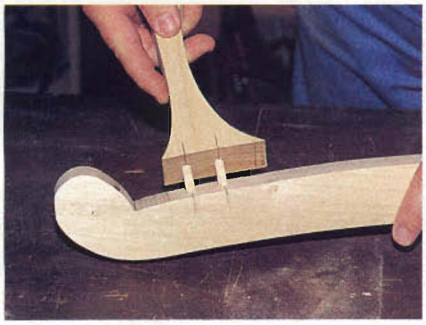


***Photo 6** The arm and arm support are attached using ½" dowels.*

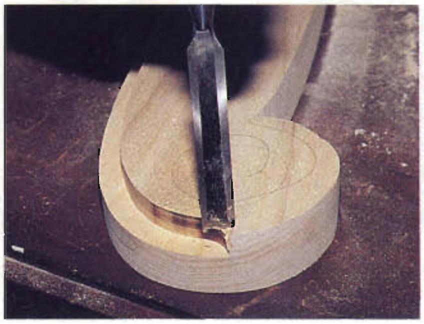


***Photo 7** After the ½" x ½" rabbet is routed into the two ends, the start and stop points must be squared using a chisel.*

***Photo 8** A ⅜" roundover bit is used to soften the edges of the end pieces.*

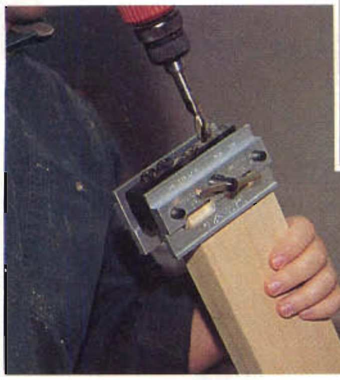


Photo 9 *A doweling jig and drill is used to end-bore the holes in the stretchers and the center seat support.*

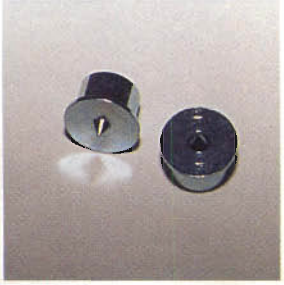


Photo 10 *A set of ½" dowel centers are used to transfer hole locations from the dowel pockets in the swing ends.*

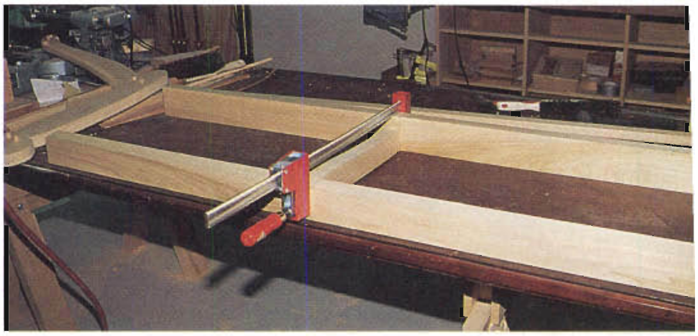


Photo 11 *The center seat support is glued and clamped between the front and rear seat stretchers.*

tom of the rear stretcher. Place the dowel centers in the dowel holes and press into place on the front stretcher. Since we're using poplar, pressing should be enough to mark the drilling location. Drill the dowel holes and test the match. Repeat the process for the rear stretcher.

Continue to locate and drill the rest of the dowel holes, then dry fit the entire frame assembly. When satisfied, finish sand all the pieces to 120 grit.

You're now ready to glue and clamp the center seat support between the front and rear seat stretchers *(Photo 11)*. Glue first one end, then the other to the frame assembly *(Photo 12)*.

While the frame dries, head back to the saw and cut the seat slats if you haven't already done so. Each slat should be cut to fit between the rabbets on the frame with very little side to side play. Run an ⅛" chamfer on all four top edges. Pay attention to the quality of each slat and choose the best side to face up.

After removing the clamps from the frame, drill, countersink and screw the slat support block to the front stretcher at the center point. The next step is to fill any cracks or holes on the piece and sand to the desired finish grit. We next painted all the pieces with a primer coat using an HVLP sprayer with a latex primer/sealer.

For the color coat we decided to spray the slats while loose, which makes it easier to cover all surfaces. Once the slats are painted they are attached to the frame using a ¼" spacer to assure regular spacing. We pre-drilled the nail holes to avoid splitting at the ends of the slats *(Photo 13)*. The next step is to attach the arms to the sides. Use a ¾" x 3" eye bolt through the center of the lower arm assembly and into the end *(Photo 14)*. The rear of the arm is attached 1" in from the back edge by screwing from the inside of the end using a 2½" flat head wood screw.

Duplicating With Templates *3 Methods to Get the Job Done In Your Shop*

There are a number of methods used to duplicate shapes matched to a template. To produce the curved parts called out in our porch swing, we've chosen three different methods to illustrate; using a shaper, a router, or simply bandsawing and sanding.

A *SHAPER* equipped with a straight knife set flush in a ball bearing rub collar *(Photo A)* produces the smoothest cut. After making the template (I like to use ½" 9-ply birch) trace the shape on the blank to be duplicated. Next bandsaw the blank to within ⅛" of the line. Tack or screw the template to the part. Set the shaper spindle so the top of the knife is a fraction above the work and the rub collar contacts the template. Aside from the standard safety precautions of shaper operations, be very careful in starting the cut. You must do

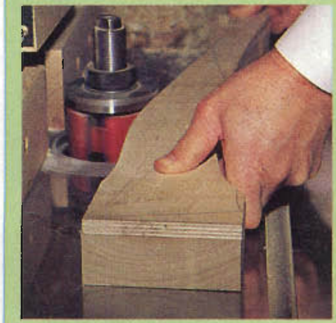


Photo A *The straight knife set flush in a ball bearing rub collar is shown in use on the shaper. Note hand position behind work.*

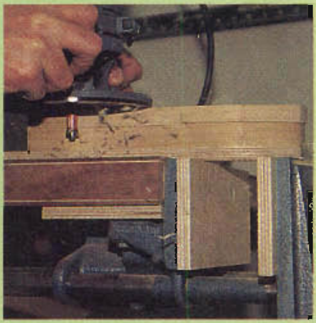


Photo B *Using a bottom mounted bearing flush cutting bit in a router to make the second pass on the surface. A bit with a top mounted bearing was run first.*

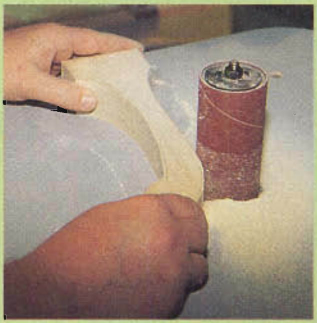


Photo C *After bandsawing to the line traced from the template, a spindle sander cleans-up the kerf marks from sawing the shape of the arm support.*

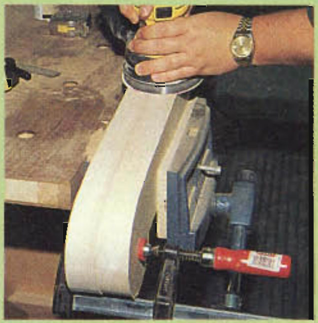


Photo D *The two seat ends are shown clamped together while a random orbit sander does final sanding on the two pieces.*

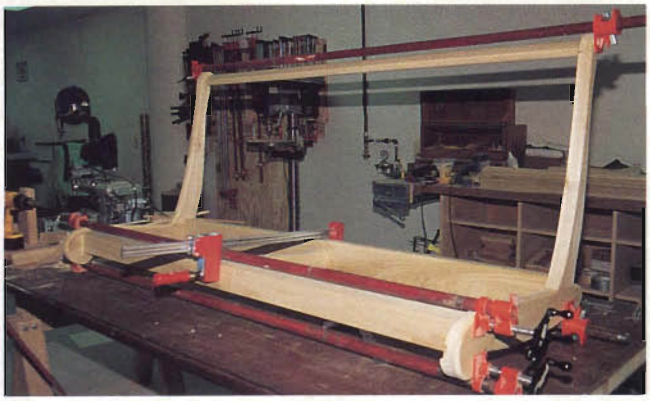


Photo 12 *The frame is glued and clamped.*

Now that all the pieces are attached the final color coat of paint can be applied. You will want to tape over the eye bolts to avoid painting the hardware. To help preserve the finish, we gave the swing a final coat of clear, water based polyurethane lacquer suitable for outdoor use.

To hang the swing we used ordinary chain that was plated to resist rust *(Photo 15)*. You'll want to adjust the angles and chain lengths to suit your personal preference. Generally, though, the seat should be high enough so that your feet don't drag, but low enough to push off on your toes. Now sit back, throw a blanket over your lap, and enjoy the harvest moon rising.

Steve Shanesy *is editor of* Popular Woodworking *and* ***David Thiel*** *is associate editor.*

this very slowly. It is strongly recommended you also use a fence or other fixed bearing surface to act as a pivot point in easing the work into the knife. Once the template has made contact with the rub collar, continue feeding the work slowly. Always make sure your hands are on the opposite side of the workpiece and well away from the knives.

The second method uses a ***ROUTER*** and a ½" flush-cutting pilot bearing bit *(Photo B)*. As with the shaper, bandsaw to within ⅛" of the template line. This method requires two bits, one with a bearing mounted on top and another bottom mounted bearing. Use the top mounted bearing bit first with the bearing running against the template. Then remove the template, change to the bottom mounted bit and run that bearing on the duplicated surface produced with the first cut. A bit of sanding will be required to even out the two passes, but this method produces accurate results.

A third option uses a ***BANDSAW*** with the kerf marks cleaned up with a ***SPINDLE SANDER (Photo C)***. Bandsaw the shape leaving only the template pencil line, but don't go inside the line. Sand to smooth out the saw marks. Use a random orbit or palm sander for final sanding. This method produces the least accurate, but acceptable results *(Photo D)*.

WOOD´***WORDS*** (wood´wʉrds) *n.*

Pinch dogs: *A simple steel tool with pointed, wedge shaped ends which, when hammered into pieces across a joint, pull them together. Used in place of a clamp.*

Pilot bearing: *A bearing mounted to the shank of a router bit to serve as a guide to the knife thereby controlling the cut.*

Dowel Centers: *Metal inserts available in multiple sizes with a centered point on one side. The opposite side fits into drilled dowel pockets and the pointed side presses into the opposing piece locating the mating dowel pocket.*

HVLP: *High Volume Low Pressure spray finish system. Sprays a high volume of finish material at low air pressure. By reducing air pressure, overspray is significantly reduced. An HVLP sprayer and water based finishes can eliminate the need for a sophisticated spray booth so long as adequate ventilation is supplied. Always follow manufacturers directions and local building codes.*

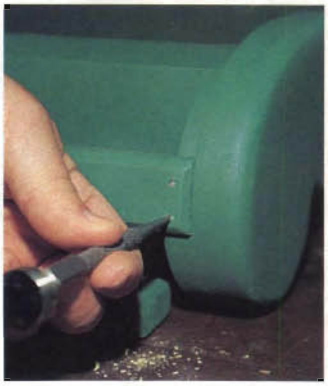


Photo 13 *The slats are nailed into place with a ¼" space between each piece. One or two nails may be used depending on personal preference.*

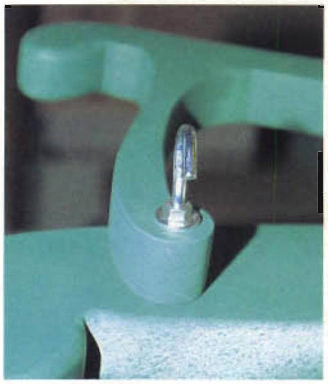


Photo 14 *The eye hook in place at the bottom center of the arm support.*

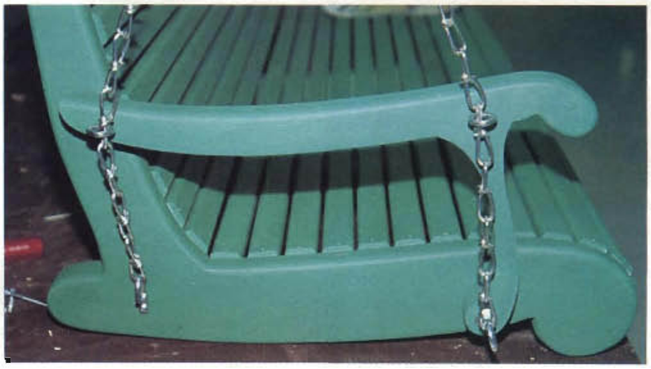
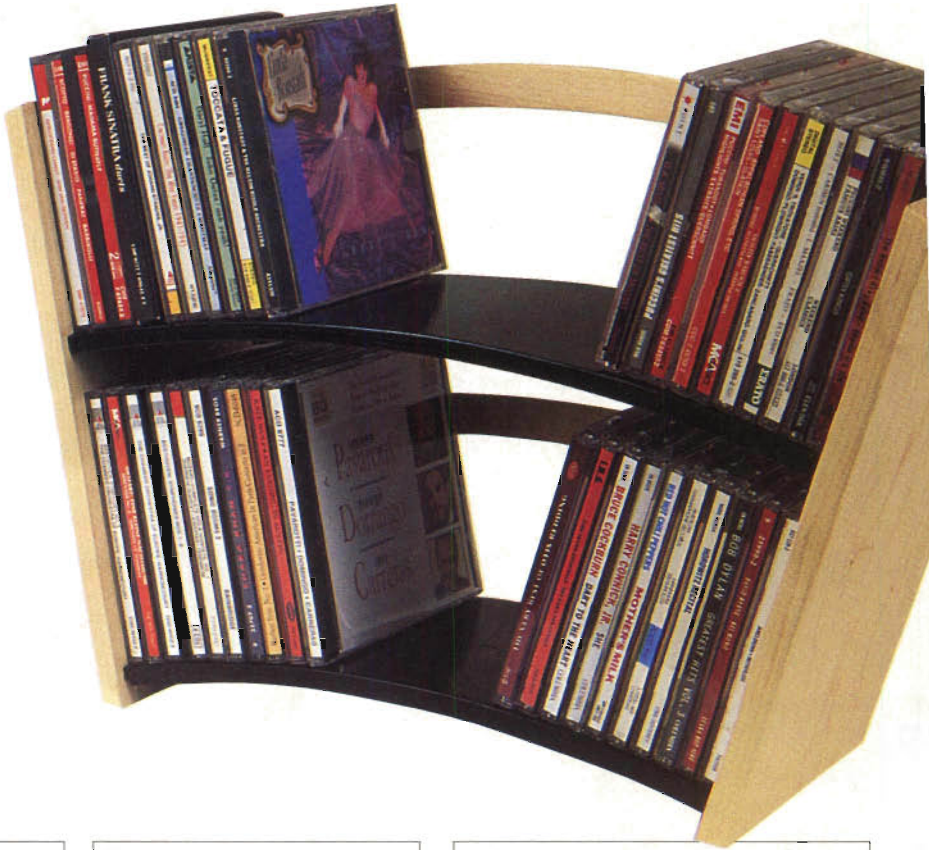


Photo 15 *This side view shows all hardware and chain in place. The swing is ready to hang.*

Bent-Wood CD Rack

Here's a scrap-box project that'll keep your compact disks handy — and refine your dry-form bending technique.

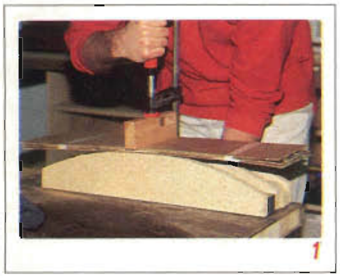
By Bruce Woods



It may be the big, dramatic projects that furnish our daydreams—the chests-of-drawers, inlaid cabinets, graceful-legged tables—but these marathon building jobs draw heavily on two resources that many of us have in scant supply: expensive hardwoods and shop time. As a result, most of us are eager for some immediate gratification, in the form of a practical project that won't consume inordinate amounts of either hours or wood. This CD rack fills the bill.

Since the dimensions of the project are all interdependent, it's best to begin with a full-size plan, which we've provided for you in the PullOut™ Plans on page 33.

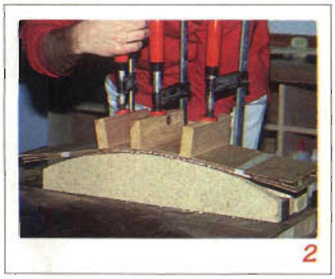
Bruce Woods is editorial director of Popular Woodworking.



1

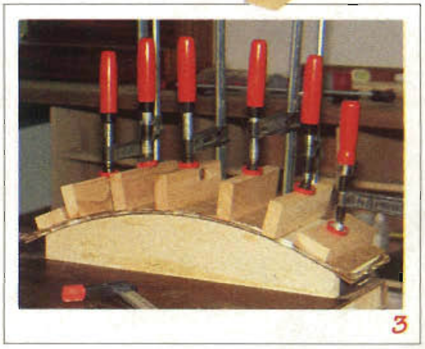
1 *Begin by making a form upon which your shelfstock can be bent and clamped. To do so, use a radius-cutting router jig to duplicate each of the two shelf arcs (see full-size drawings on the PullOut™ Plans) onto inexpensive particle board. Cut out three of each, as seen in the photo, and tack each group of three around sandwiched blocks of scrap.*

Next, cut the shelf material into pieces slightly longer and wider than the finished shelves will be; you'll need three pieces per shelf (we used some ⅛" hard board we had around; tempered hardboard or ⅛" plywood would also work, and would certainly take paint better than did the thirsty material we chose). Brush glue onto the mating shelf surfaces, and move to the form.



2

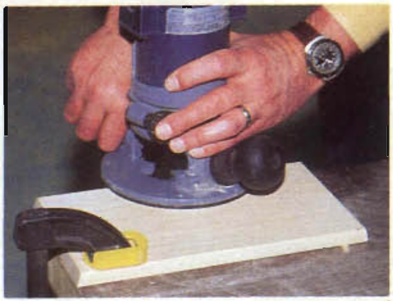
2 *Use blocks to help spread the pressure of the clamps evenly. To clamp the outer edges, use blocks that are angled on one side, or cut notches into the tops of the blocks to catch the clamps. You should see the glue squeeze out, as shown. This should be wiped off with water after the clamps are in place.*



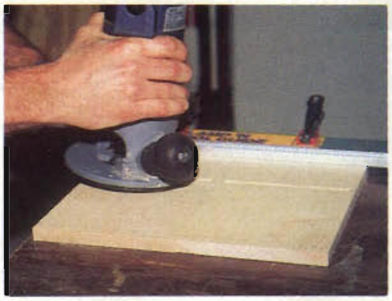
3

3 *Don't skimp on clamps, the more the better for this sort of job. Allow the clamped fiberboard to sit overnight before removing it from the forms.*

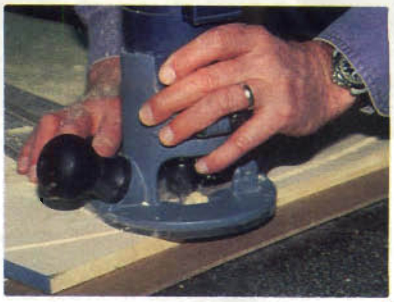
TIP If you're shy of clamps, but long on scrap material, you can make a concave form that will mate with the lower form, and apply even pressure across the shelf with only four clamps.


4

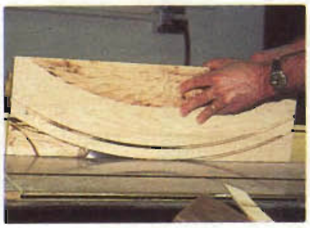
4 *While waiting for the shelves to dry, go ahead and cut the maple sides to size, matching the angles (see PullOut plans) along the top and bottom. Use a router and roundover bit to add a little interest to the outer edges of the two sides.*


5

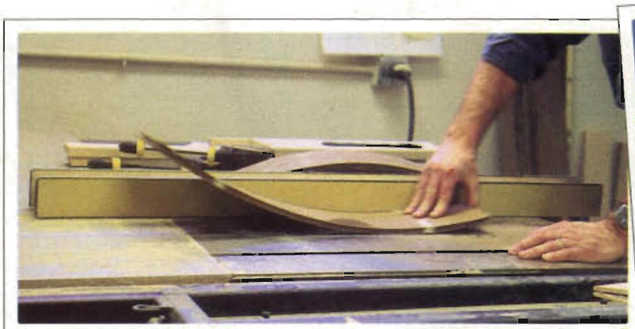
5 *Now, using a clamped straight edge, route the ¼" wide by ¼" deep dados that will later accept the ends of the two shelves. It's imperative that, during the design process, you plan the angles and curves in such away that the shelf ends enter the dados at an approximately 90° angle. You can do this by using the same radius point for all of the arcs.*


6

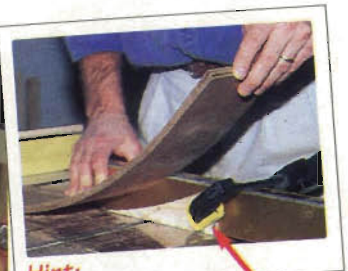
6 *Using the same router jig setup used for the forms and a ¼" straight router bit, mark and cut, to a depth of a ⁵⁄₁₆" to ⅜", the outer edges of the two curved back rails. Leaving them, at this stage, as simply two sets of curved, parallel grooves in the maple board.*


7

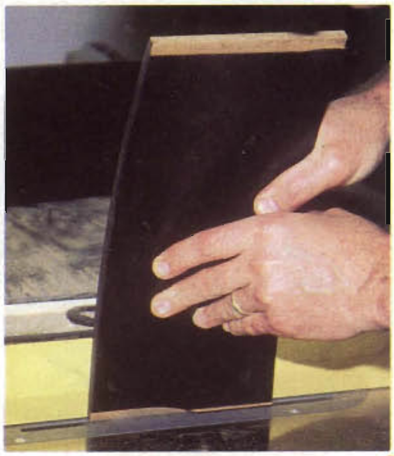
7 *Set your table saw to the appropriate cut (the fence setting will depend upon the thickness of your material; you want to leave a ¼" thick rail), and (gingerly!), using multiple cuts and raising the blade about an inch at a time, slice the two curved backstops free of their board. Another, even simpler, method would be to start with ¼" stock. Draw the arcs, cut them out on a band saw, and sand the edges smooth.*


8

8 *Now set your fence and cut the shelves to their final width. Once this is done, paint the shelves with several coats (depending on the density of your hardboard, this could be three or 23!) of gloss black lacquer.*


Hint:

You'll find that a piece of falloff from the Step Seven makes for an ideal support to hold the shelves in position while you cut them to the correct length (be sure to take the ¼" dadoes into account when calculating the length; use the full-sized PullOut Plans to determine these lengths).

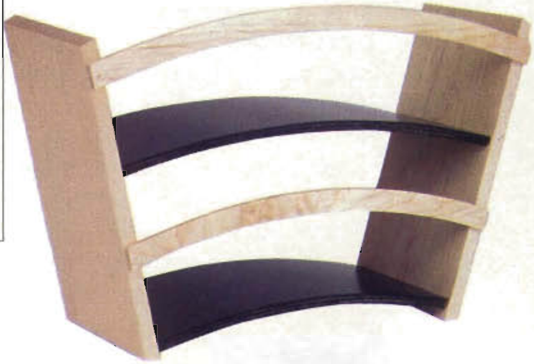

9

9 *Rabbet the ends of the shelves to match the ¼" dados by carefully removing material from the undersides of the shelves, leaving a ¼ X ¼" tongue.*

10

10 *Use a rasp to ease (slightly!) the edges and nip the corners of the shelves to help them start into the pre-cut dados.*

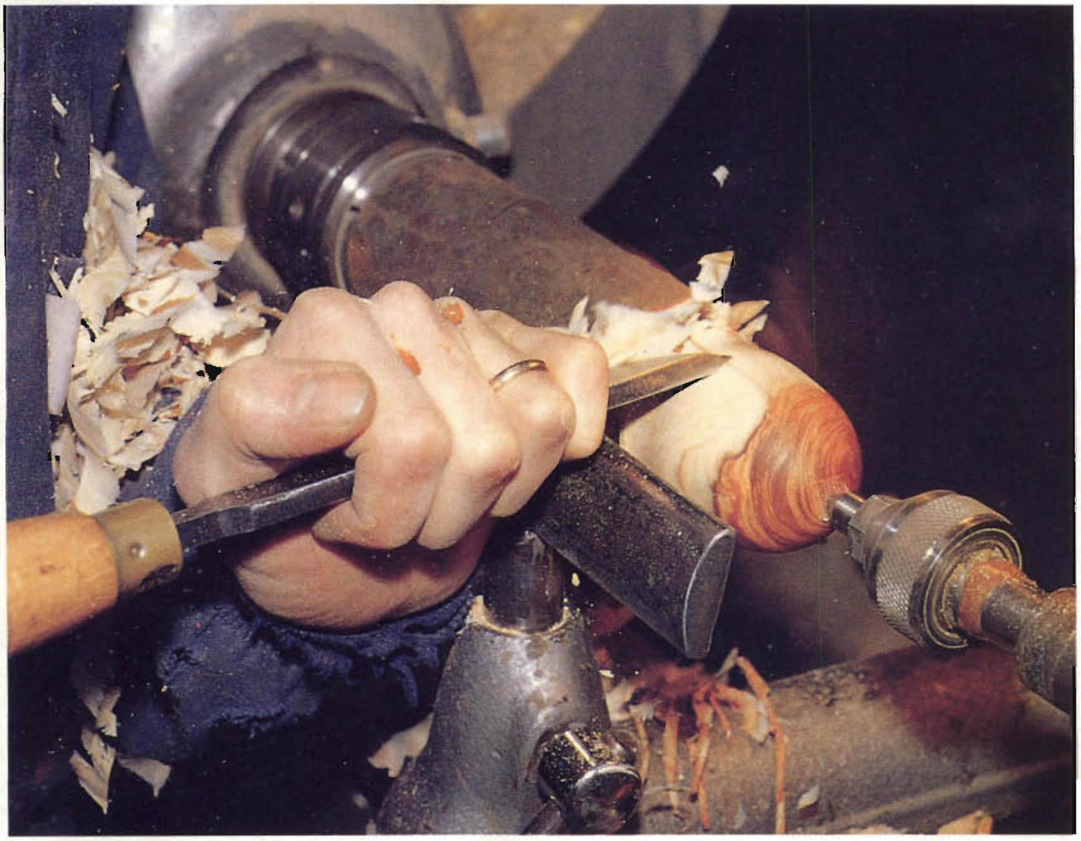
11 *We were able to apply glue and press-fit the assembly together. If you need to clamp yours, tapered blocks will help to hold your clamps in place. After the assembly has dried, mark the positions of the back rails, cut each to length, drill pilot holes (to prevent splitting), and secure the rails with brass escutcheon pins.*



12 *You can use whatever finish you prefer (oil finishes are lovely on maple, and bring out the glow of the wood). We sprayed two clear coats of water-base lacquer over both the maple and the pre-painted, black shelves. A quick clean-up with 360 grit sanding paper produced a glassy-smooth surface option; and a decorative home for wayward compact discs!*

Beading on a Spindle

Which came first, the spindle or the egg? It's up to you!



By Tobias Kaye

When I first tried spindle turning I realized that I had no idea what shape I wanted to make. Bowl turning is easy — put a convex curve on the outside and a concave curve on the inside. Every subsequent bowl is merely a refinement of the same principle.

> "We should learn to cut the wood as the wood likes to be cut."

Spindle turning seemed different. In retrospect I could say that my first piece had some thicker and some thinner sections and that every spindle since has been a refinement of that design. There are, however, a few principle shapes that help us to make the transitions from thick to thin and back again. The most fundamental of the thick shapes is the bead.

Turning the Bead

Forming satisfactory bead shapes is perhaps the most complex single turning operation. If a bead is to have a smooth finish and not be merely scraped to shape, the tool must execute a complex combination of roll, swing and lift movements. This is so the bevel and the cutting edge remain in the correct relationship with the surface being cut. Unless this movement is right the result is either a poor bead shape or a catch, where the tool kicks back, cutting a deep spiral into the intended bead.

You may ask if it's worth the effort and frustration of learning this complex technique when scraping can form a lovely shape and when various bead forming tools are available.

The answer for me lies in the guiding principle of lathe work, as stated by Frank Pain, the father of modern wood turning, in his book *The Practical Woodturner*. "We should learn to cut the wood as the wood likes to be cut," Pain says. Following this advice makes work go faster and teaches sensitivity for the wood that, *in turn*, makes turning more enjoyable. It also lets you bring out the best when making single pieces.

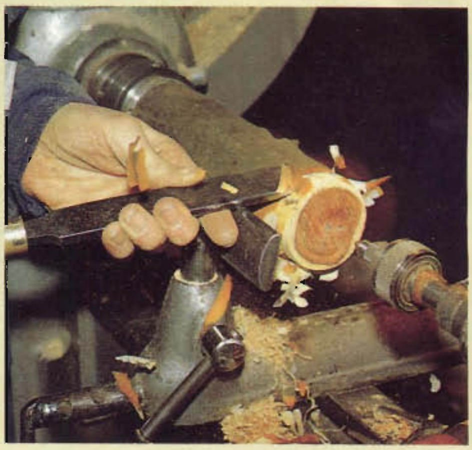
A further benefit is that the closer you get to this goal, the better the finish you get from the tool. Consequently, you'll sand less, and we all agree sanding is the least pleasant of wood turning activities.

The Hard Way—Skew Chisels

The best yet most difficult way to form a bead is with the

FOURTEEN STEPS TO AN EGG...

1 *It's best to turn the egg in a chuck, so work a stub at one end between centers first, using a parting and beading tool, for the chuck.*



2 *With the log reversed on the chuck you can rough it out with or without the tailstock. Tobias uses a skew, but you may prefer a gouge.*

cutting edge of a skew chisel. When correctly done this leaves a finish second to none that requires no sanding at all. Sharpen the tool on a grinder with a large steady angle guide. The bevel produced must be even on both sides, and of a constant angle without ridges. The included angle between the two bevels should be between 35° and 45°. The tip is skewed 15° from square. A curve across this edge makes the tool easier to handle but less precise. The curvature I prefer is about 1¾" radius. Remember that the point of cut must remain below the halfway mark of the blade, so cut with the lower half of the blade.

First mark out the size of the bead to be cut with "V" cuts using the long corner of the tool or with plunge cuts using a parting tool.

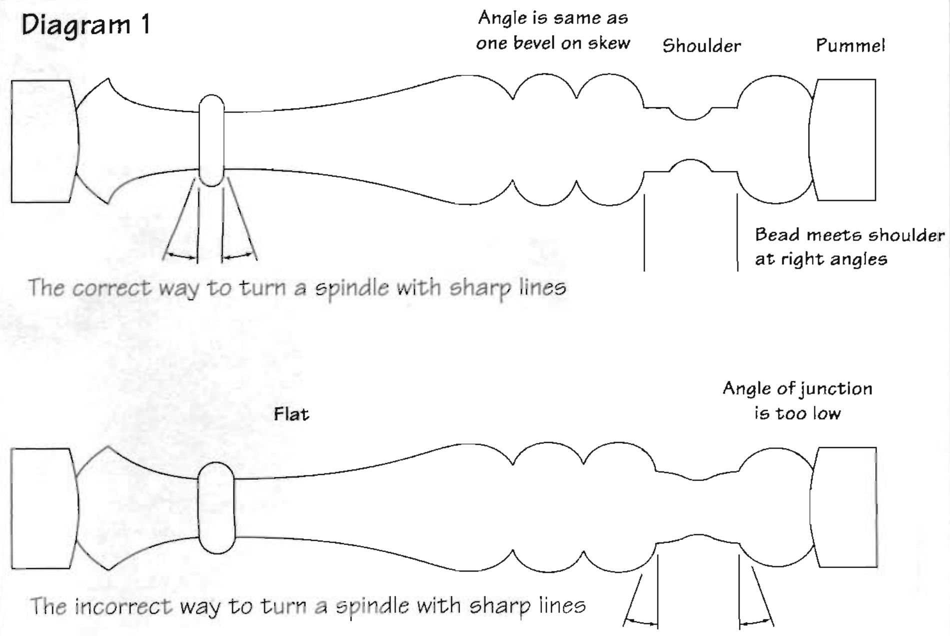
TIP

To find out at what angle the tool is ground, line the back of it up with a straight pencil line on a piece of paper or other smooth surface. Hold a straight edge against the bevel and draw a line along it. Measure the angle between the two lines with a protractor.

Locate the skew on its bevel at the cut made identifying the top of the bead. With the handle trailing by about 15°, draw back to engage the edge. Begin the cut by swinging the handle out to 30° and then begin to roll the tool. This curves the edge down into the wood so lift the handle to follow it. As you lift the handle move it in a curve up and away from the bead's crown, ending up nearly 20° away from the bead. In this way the handle travels in a half-moon arc.

The first swing provides a fully rounded top to the bead. If you begin the roll and lift without the swing you will likely get "gothic arch," or pointed, top beads. The last movement of the handle to 20° is necessary only if the bead stands proud of a flat surface or meets a shoulder. Without this step such a bead would come down to the flat at an angle, not perpendicular, and would look sloppy. The tool comes around to the perpendicular, and no further, where a bead meets another curve or a pummel — because the pummel or curve prohibits any more swing—so that the junction between the two features is symmetrical. The angle of this junction should be the same as the combined angle of the skew angles.

Diagram 1


Angle is same as one bevel on skew
Shoulder
Pummel
Bead meets shoulder at right angles
Flat
Angle of junction is too low

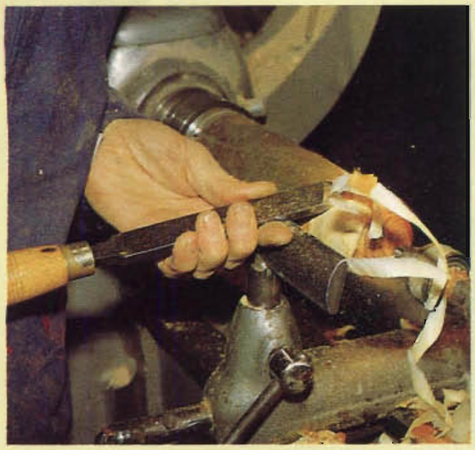
The correct way to turn a spindle with sharp lines

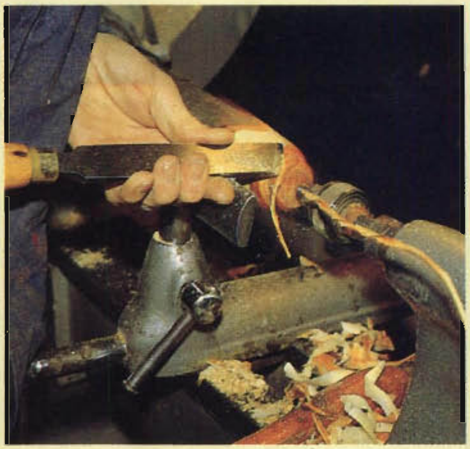
The incorrect way to turn a spindle with sharp lines

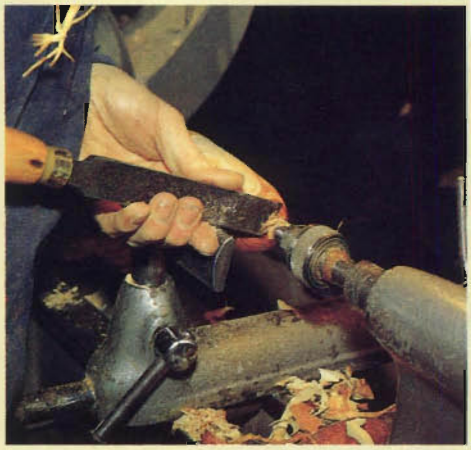
Parting Tool Beading

The next most popular tool for beading is the parting tool. Special square section beading

FOURTEEN STEPS TO AN EGG...


3 *Yew is a dream to turn, with the shavings flowing off in a multi-colored stream as you break through the bark, sapwood and heart.*


4 *Use the rolling, swinging action to shape the egg (which is only an enlarged bead), bringing the handle up as you near the center.*


5 *When working at the end of the blank it certainly helps to have the tailstock up, to keep vibration to a minimum.*

and parting tools are available in ¼" and ⅜" versions. The tool is used with the corner doing the cutting. The bedan is a single bevel version for use in a similar way.

To form a bead with one of these tools, the right hand side of a bead is cut using the right hand comer of the tool and similarly the left hand side with the left corner.

The place to begin the cut is on the crown of the bead. Swing the tool 10° or 15° to ensure a nice rounded top and roll down the side lifting the handle where necessary. A variety of different size tools are particularly nice for this technique. A good finish is possible, but not as good as with the a skew chisel. I find I get more satisfaction and better shavings using the skew. To my mind, using the parting tool isn't really cutting the wood as the wood likes to be cut.

TIP **Use rounded skew chisels, which are easier to control than ordinary ones.**

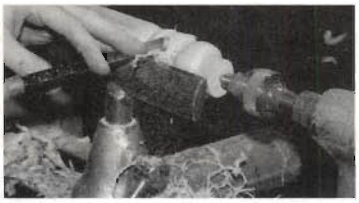
Fingernail Gouge

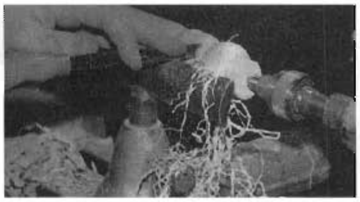
Another popular technique is using a fingernail gouge. The size most useful for the average bead is the ⅜" gouge. A fingernail tip to this gouge can be obtained by swinging the gouge as it is rolled against the grinding wheel **(see Six Steps to Grinding a Fingernail Gouge)**. A large steady angle guide is a great help here. A well sharpened fingernail gouge will not have any straights or points on the cutting edge. A smooth elliptical curve from one side to the other and a round tip works best.

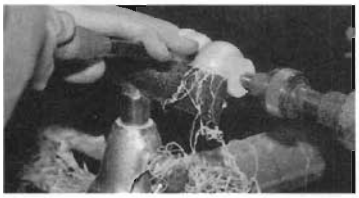
Beading with this tool is very similar to using a skew chisel. Place the bevel on the crown of the bead with the handle trailing by about 15° to 20°. Swing

FOUR TOOLS FOR THE SAME JOB...

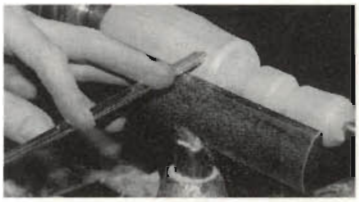
SKEW

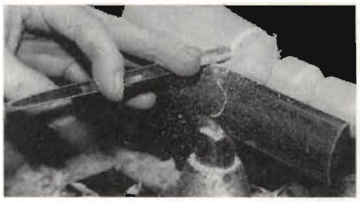

1A *Start with the skew handle trailing and below the tool rest. Notice how the skew is cutting with the lower half, and is fairly flat on the rest.*

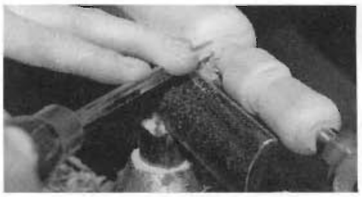

1B *As you shape the bead, the handle is raised and swings towards the perpendicular as you roll the skew. Be sure you cut on the lower half of the skew.*


1C *Where two beads meet the angle of approach of each of them must be the same, so end the cut with the skew at right angles to the rest and the handle high.*

FINGERNAIL


2A *When using the fingernail gouge, start with the handle trailing by about 15°, and the tool ready to cut just to the forward side (right here) of the tip.*


2B *You'll probably find it easier to take more material off with the gouge, swinging it up and across as you roll it onto its side.*


2C *To account for the bevel on the fingernail gouge you will have to swing it way past the perpendicular to make the bead join a flat surface at right angles.*

the handle further out, then roll the tool to keep the cut a little to one side of the tip (left when cutting left, right when cutting right). Don't use the trailing side of the gouge. As the tool dips around the bead, lift the handle and swing it out across and away from the bead's crown until it stands out at about 40° to the perpendicular. In other words until the bevel is perpendicular, creating a sharp, smart bead profile.

While using this tool it's quite easy to go past the perpendicular and undercut the side of a bead so that it stands strongly out from the surface. This gives the spindle work a particularly dynamic look, quite different from the sloppy look of copy lathe turning where each part of the design merges indistinctly into the next.

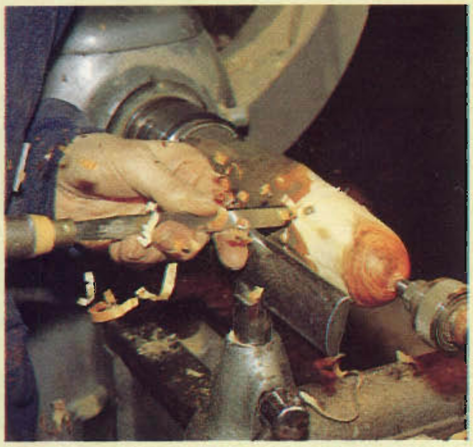
Gouge beading is a technique I use quite frequently. My gouge has a long bevel of about 33°. This gives a very sweet cut and feels to me as if the wood likes being cut this way. Because of the curvature of the gouge, a fine line, invisible to the naked eye, spirals down the bead. This is easily removed with the finest sandpaper. Apart from this the finish is as good as that obtained from a skew chisel.

One other method of turning a bead is by using a beading and parting tool. This method is explained in **Fourteen Steps to an Egg.**

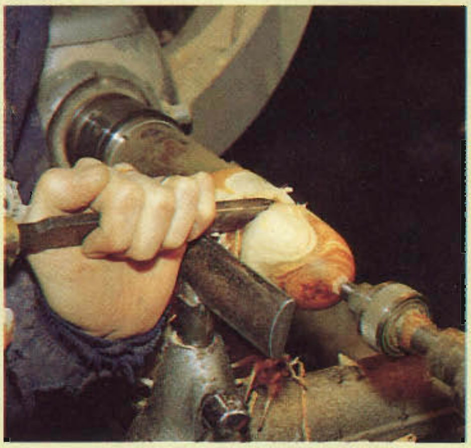
Practice Beads by Turning an Egg

To practice forming beads, you could simply make rows of beads, but this is both tedious and unrewarding. Making wooden eggs is a simple exercise, during which the tool executes the same movements used in bead cutting.

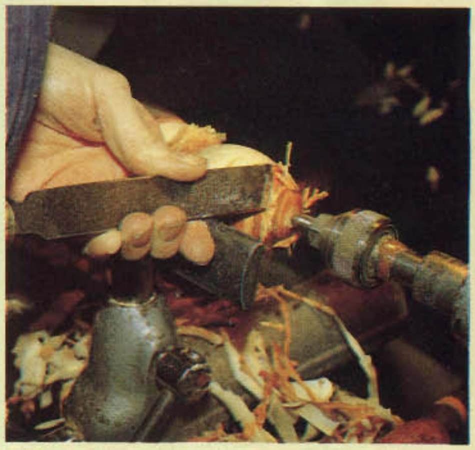
Making wooden eggs is possible with the stock held between centers, but getting a fine finish on the ends is easier with chuck mounting. For my egg, I chose a branch of Yew that was still sopping wet from the



6 Use a parting tool to mark off the other end of the egg. Don't go too deep as you'll weaken the piece before all the shaping is done.

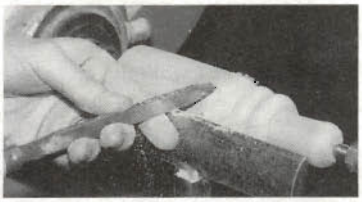


7 Revert to the skew for beading. Keep your hands in the same position, but swing the handle into the body as you roll and lift.

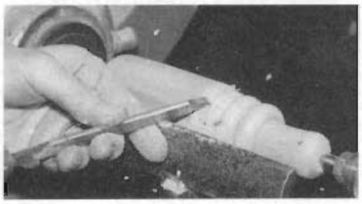


8 With both ends roughly shaped, turn the tailstock end down further to produce a small stub, which can be removed.

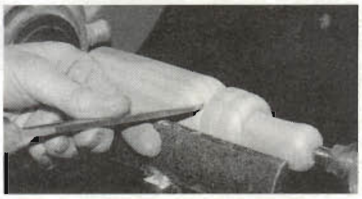
PARTING TOOL



3A *The parting tool is one of the more popular turning tools for beading, and probably the easiest to use. Start with the handle trailing, and cut with the point.*

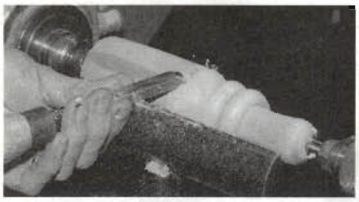


3B *Roll and swing the parting tool, raising the handle as you shape the bead. This produces a rough edge, which may not be the kindest way to cut wood.*

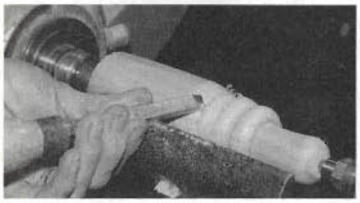


3C *By the time you have finished the bead, the parting tool handle will be high and the tool on its side. The junction of beads has to account for the bevel angles.*

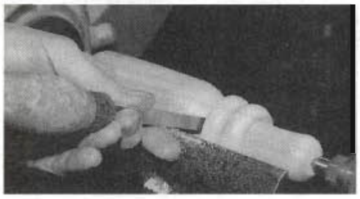
BEADING & PARTING TOOL



4A *The beading and parting tool is square in section, and ground like a parting tool. Cut only with the corner of the edge, and not like a skew.*

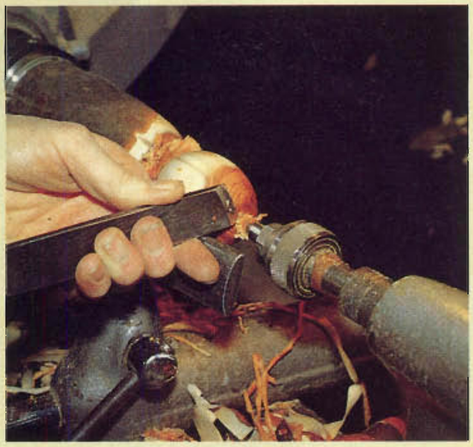


4B *Swing the tool round and up, and roll it over. Like the parting tool, cutting with the corner means the wood is being torn rather than cut sweetly.*

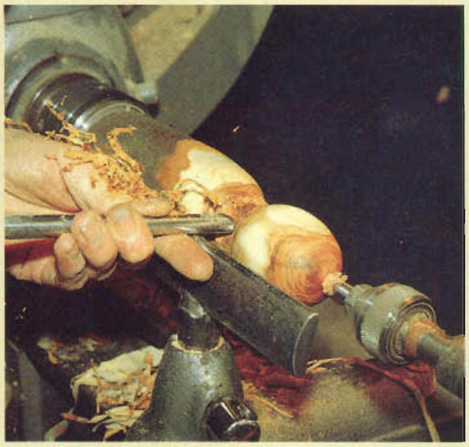


4C *End the cut with the handle high and at right angles to the tool rest. Again, the junction with other beads is limited by the angle of the bevels.*

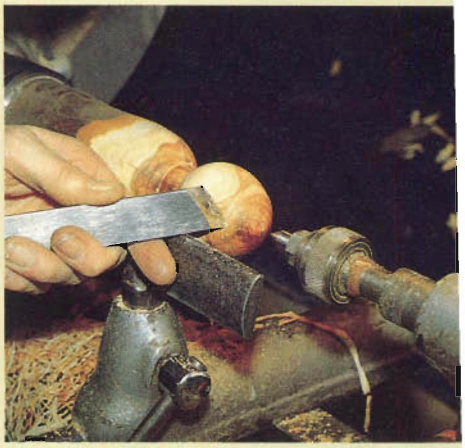
FOURTEEN STEPS TO AN EGG...



9 *You may find it easiest to use the long point of the skew to take the stub right down, but without parting it off.*



10 *Use a fingernail gouge to remove wood from the waste to the chuck side of the egg. This gives access for parting off.*



11 *Having pulled back the tailstock, you can clean up the end. On a cleaning cut, use the long point — it's easier to feather in.*

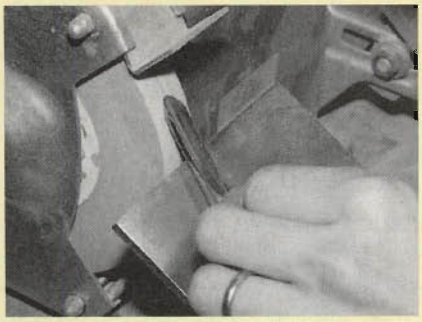
garden, risking the chance of a split. I put it up between centers and turned the end to the 1½" shape required for my Roy Child Masterchuck. For a contracting grip this chuck excels by pulling the wood back against the shoulder. Pressure at that point insures stability far out along the work. A small notch has to be cut in the spigot to accommodate the jaws, which are designed to pull.

Having put the work in the chuck, rough it round. You can do this without using the tailstock. I use a skew for roughing most often because it causes less resistance than a gouge and cuts more pleasantly.

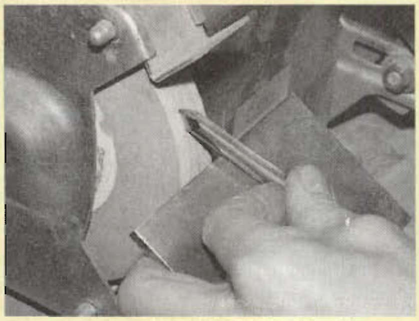
Advance the tailstock a touch to reduce vibration while cutting the curves. These curves are formed with the same swing, roll and lift process as cutting a bead.

Eggs are a subtle shape, every one is different. Most are lumpy and ridgy, if closely examined, yet whether they laid by

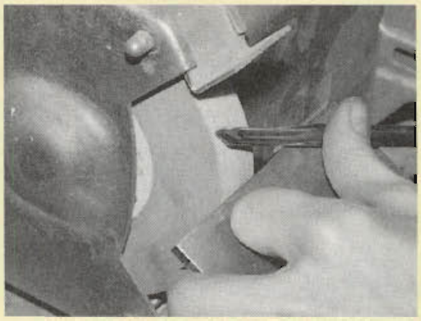
SIX STEPS TO GRINDING A FINGERNAIL GOUGE



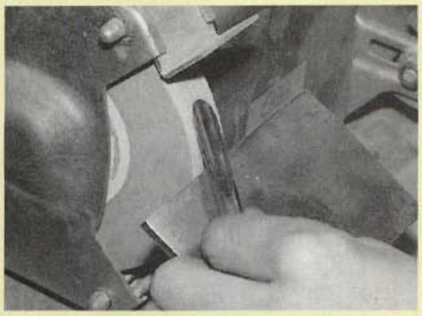
1 *Start with the gouge upright, flat on the tool rest, which I set at about 33° for the bevel.*



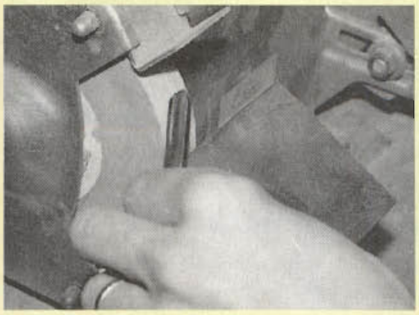
2 *As you roll the gouge over, swing it round, keeping the degree of roll and swing constant.*



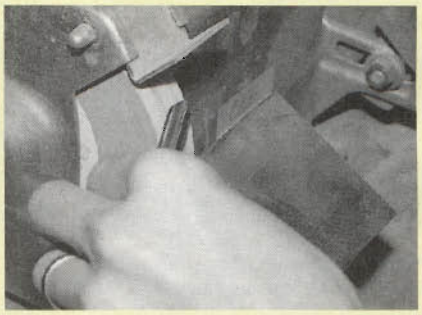
3 *By the end of the swing and roll you will be using the whole of the tool rest, so a steady, wide plate helps.*



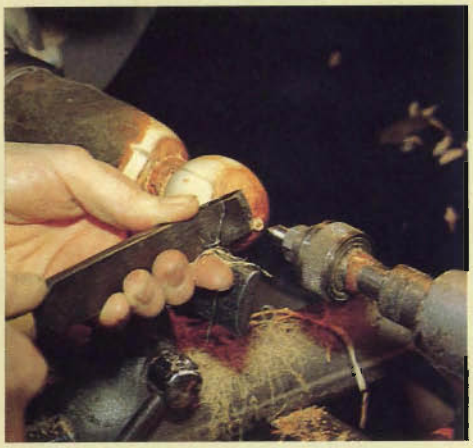
4 *Having completed one side of the gouge, start again in the upright position and work the other way.*



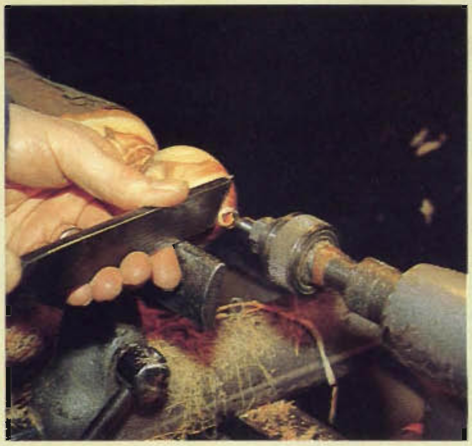
5 *You need not change hands for grinding, but as you swing the tool, move one hand underneath the other.*



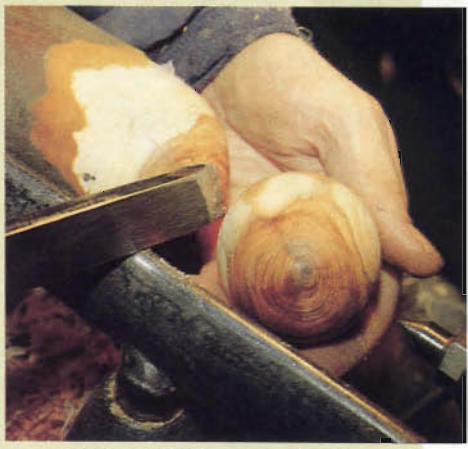
6 *As you swing the tool, watch for sparks spilling over the cutting edge to show it is being sharpened.*



12 *Whenever you use the long point, keep your action smooth, taking off the least waste possible to reduce the chance of tearing.*



13 *You will get the cleanest cut with the short corner of the skew to finish, but do take care; be firm without forcing it.*



14 *Cupping the egg in your left hand, cut the egg off with the long point of the skew, which you can control with one hand.*

turkeys, chaffinches or emus, all eggs have a basic shape in common. The one shown in **Fourteen Steps to an Egg** is a penguin's egg.

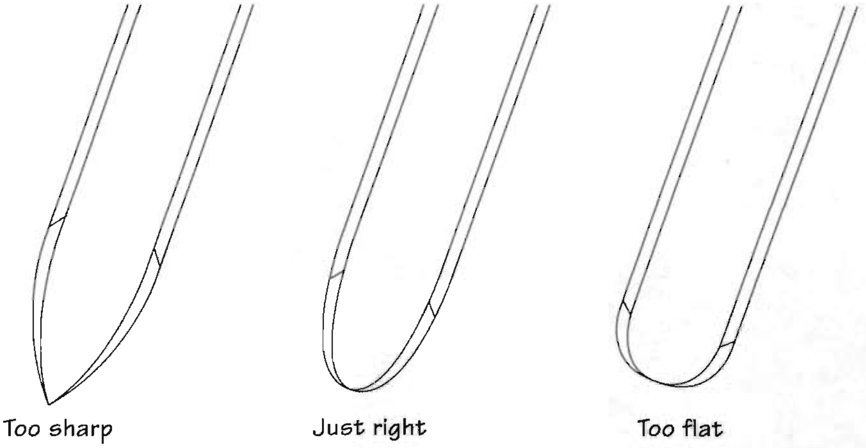
Having cut the longer nose of the egg and finished it to your satisfaction, begin on the shorter, fatter curve. Once this is nearly complete you may well wish to alter the first end. Remember, however, that where much of the support has been cut away vibration becomes a problem if the short end is already cut thin.

The cutting edge near the long corner can be used when working near the center of rotation. When you get to cutting off, a gouge can be used to clear waste. Keep a large enough gap so that the bevel does not put pressure on the egg. The smaller you are able to go before you separate the egg, the less cleaning up by hand will be necessary. What cleaning is necessary can be done with the skew that is still in your hand. Some turners leave a stub to ensure the end grain does not tear.

To complete, rub the egg's bum in sandpaper, twisting it against the abrasive held in the palm of your hand to simulate the rotational sanding you have done on the lathe. I finish with oil and wax.

Diagram 2

Are you grinding a fingernail gouge to the right shape?



WOOD´WORDS (wood´wʉrds) *n.*

Bedan: *A single bevel chisel that the French use as an alternative to the skew chisel. The sides are tapered from the top face down to the lower face, so the top is wider than the underside. The edge is straight across and not skewed.*

Pummel: *The area on a turning that is part square and part round where a turned section meets a square section, as on stair balusters and table legs.*

Crown: *The top area of a bead.*

Skew Chisel: *Rectangular section tool with bevels ground on either side to 40-45° of each other, with the edge is skewed at about 20°.*

Parting and Beading Tool: *A version of the parting tool, but of square section with a square cutting edge (sometimes known as a P and B tool).*

Tobias Kaye *is a professional turner who also teaches and writes about his woodworking specialty from his home in Devon, England.*

ED. Note: This article originally appeared in *Good Woodworking*, a popular British woodworking magazine edited by Nick Gibbs.

Chisels & Gouges

A guide to what's new, including tips on what to use and when.

By Hugh Foster

Chisels are called upon to do more precise work than almost any other hand tool. Most of us will buy only a couple sets of chisels over our entire woodworking careers, so it's important to make the right choices. There are three main types of chisels:

Firmer Chisels

Firmer chisels still have the original square cornered chisel shape. These are most useful for rough and heavy work, especially the cutting of housing joints and grooves where it's important to keep a 90° edge.

Bevel Edge Chisels

Bevel edge chisels, the kind we most often buy, were developed for cabinet work like dovetailing and chiseling clean cuts in acute angled corners. Just because these are the most popular and adaptable doesn't necessarily mean they're the kind we should use most often.

Hugh Foster is a noted woodworking writer and a contributing editor to Popular Woodworking. *He lives with his wife in Manitowac, Wisconsin.*

***Photo 1.** A range of chisel styles and price ranges are produced by Stanley including their series 1501 with shatterproof handles; series 5002 with blue, traditional carver style handles and the Goldenberg series.*

Mortise Chisels

Mortise chisels are heavier versions of firmer chisels. Their added thickness will take hard use in chopping deep mortises where the blade is used for cutting, as well as for levering out waste wood. Further, their tapered shape prevents the chisel from jamming in the cut.

I've used enough chisels over the years to be quite certain that a good chisel must meet all of these qualifications:

- Well designed for the work it is to do.
- Offer the user a choice of handle material and grip.
- Come in blade widths and types best suited for the task.
- Well balanced with a good grip.
- Made of materials best suited for the tool.
- Hold an edge for a long time.
- Be easily resharpened when needed.
- Have a "replacement" warranty in case of a defect.

Blades

Often the only differences between a manufacturers' top and bottom chisel lines are in the length of the blade and the quality of the handle. I prefer longer blades over shorter ones, especially for fine work. Manufacturers can't really change blade quality within a line of chisels. All their tools are made from high quality tool steel, hardened to a Rockwell rating around 60. For my purposes I devised a simple, practical test. I sharpened all the chisels on a grinder, honed them with a leather wheel and used them all repeatedly while building a summer's worth of projects. What I learned is that all the tools sampled sharpen nicely and hold a razor edge for a long time.

Handles

Handles are more subjective. Boxwood handles adorn my favorites in two of the five chisel sets considered here, and all the favorites feature wood handles of one kind or another. Woodworkers have long believed that boxwood handles are preferable to ash handles, and most would agree for reasons that are unprovable and all but ineffable that wood handles of *any* sort are preferable to plastic handles. Even so, I'm partial to the metal-capped, plastic handles in my old [and long out of production] Stanley 040's. These have been beaten for

Photo 4. Firmer chisels have thicker blades and square edges. The beech handled Marples chisels at right have ferrules at each end for added handle strength. The Stanley plastic handle model may be struck with a hammer.

Firmer Chisels

Firmer chisels *(photo 4)* offer a thicker and heavier blade than a standard bevel chisel, partially due to their square edge design (often used for scraping). Sorby offers the Model 284 Registered Chisel fitted with ash handles and double steel hoops. Sorby's Model 285 Heavy Duty Registered Chisels are fitted with extra long double hooped ash handles. With an average blade length of 10½", (overall 19"), they are suitable for rugged work of all kinds.

A comparison of the 25mm Stanley Goldenberg and the Marples Registered Mortise Chisel reveals that the Stanley blade is .13" thick at the end of the bevel, while the Marples is .15". With both properly ground at 25°, the Stanley bevel is .31" long and the Marples bevel is .34" long.

The Marples can be struck with a regular nailing hammer rather than a mallet, so if you're going to use a hammer (or whatever else is handy) rather than a proper mallet, this is the tool for you. Marples Registered Mortise chisels remain my choice. Like any of the chisels in this class, they're a bit costly but they'll last forever.

Photo 5. Choose bevel edge chisels when cutting in corners of less than 90°. Above, Robert Sorby brand chisels offer a range of handle styles in bevel edge chisels.

Bevel Edge

Most of us who have but one set of chisels choose a bevel edge style. These are the most popular, if not the most useful shape.

The panel (a group of follow woodworkers who helped me test various chisels in preparing this article) unanimously selected the same tool as the favorite in the deluxe bevel-edge category: The Nooitgedagt long-blade, double hooped, wood-handled, bevel-edged chisels model #1112.95.

Samples of the Sorby Model 510s featuring Boxwood handles fitted with tapered brass ferrule, and the Marples bevel edge or firmer chisels with this handle were not part of our testing. Had they been included in the survey, I believe they would have tied for *first prize.*

In 1993, when I realized I was wearing out my Stanley 040s, the 5001 series was new. I doubted they would be comparable, but I was proven wrong. The 5001s feature shatterproof handles, high quality steel with polished, lacquered blades ground at 25° (with honing at 30-35° recommended before first use).

The Sorby equivalent is the Model 500 whose cellulose acetate butyrate handles are virtually indestructible. Handle ends are lightly textured to reduce the risk of foul hammer blows. Sorby's guarantee against breakage is standard among the quality tools.

There was a three-way tie for third. Stanley 5002 blades are precision ground with blue traditional carver shape handles made from a durable polymer. Are they a step down? They're less expensive and fancy, but they're plenty nice! When I compare the Marples M444 "Blue Chip" series with the Stanley 5002, I find more similarities than differences. Both are made in England, and boast Sheffield forged

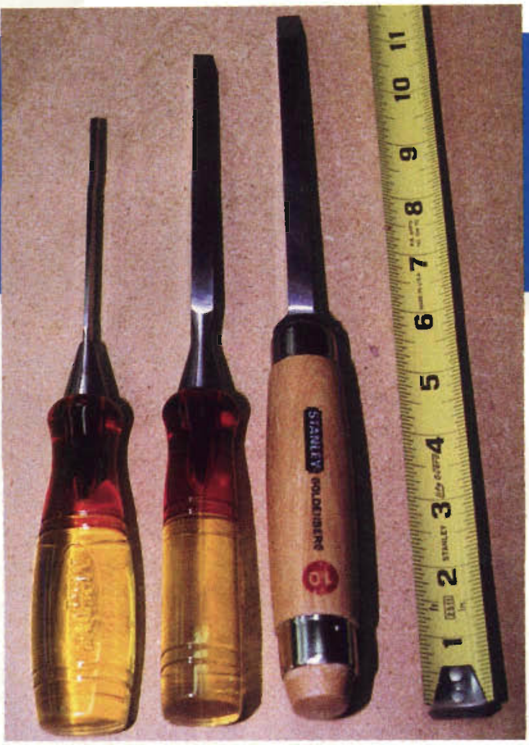


***Photo 2.** Mortising chisels from Nooitgedagt (left), Marples (center) and Goldenberg (right).*

decades in the process of cutting hand dovetails, with no signs of complaint.

A friend told me about a set of "economy grade" Stanley chisels he received as a gift. He was surprised at how flat and workable they were, and yet not so costly that you'd be afraid to use them on tasks that might harm the tool. He reports that because these chisels were so inexpensive, they've had adventures others wouldn't even dream about. When a Stanley chisel this good costs only $5, he says, what's the problem if we occasionally do some rough work with it, such as the blade occasionally hitting some cement? While we're mainly considering more expensive tools, his thought is one that really haunts the rest of this article.

When you see the process of making a chisel, it's amazing that they're as inexpensive as they are. ***Photo 3*** shows an interesting layout supplied by Nooitgedagt illustrating the steps which all manufacturers follow in making chisels.

They start with a steel rod of high vanadium/chromium content. The rod is forged, heated to 1100°C, then hydraulically pounded under 240 tons of pressure. The piece is then separated from its blank with one whack. Then the blade is annealed, slowly bringing it up to a consistent Rockwell rating of 60.5. Next it is polished and ground to a .0006 metallurgical finish. In the final step the blade is sealed with a polyurethane finish.

Mortise Chisels

I tested mortise chisels from Marples, Nooitgedagt, Sorby and Stanley Goldenberg and found all very acceptable. There's little difference between Marples and Goldenberg except that you can beat the Marples tool with a hammer, while a mallet must by used with the Goldenberg ***(photo 2)***.

I like the oval shape and plastic handle strikeability of the Marples, but at .59" thick at the shank, the Nooitgedagt is .13" (more than 28%) thicker, providing greater strength.

Sorby makes a wide variety of useful mortise chisels. Model 288 is a Heavy Duty Sash Mortise chisel fitted with an extra large diameter and double hooped ash handle. These chisels are suitable for deep mortising which demands the ultimate blade strength. Some woodworkers will prefer the Model 331 London Pattern Sash Mortise Chisel for their boxwood handles, but the Model 332 Plastic Handled Sash Mortise chisel might be more practical, as it is fitted with a cellulose acetate butyrate splitproof handle.

Despite all these good choices, it seems to me that Stanley-Goldenberg mortise chisels might well be the best choice. They now come in 8 sizes from 3–15mm. I have a 2mm Goldenberg, bought in the '70s, whose blade is so narrow that an off-center mallet blow might flex or even bend it. The current models have comfortable oval handles which I find superior in comfort to the handles on the other mortise chisels. The tools are heavy duty—great for beating and levering. I'm upgrading my chisels to the new Goldenberg version in all eight sizes!

***Photo 3.** From cold-rolled steel round stock to finished chisel blade, the photo at right illustrates five major steps in working the metal. In the beginning, a length of steel rod (1) with high vanadium/ chromium content is forge heated to 1100° C. The material is then pounded under 240 tons of hydraulic pressure forming a blank (2). After the rough shape is separated from the blank (3 and 4), tempering continues by slowly cooling the metal until a Rockwell rating of 60.5 is achieved. The blade is then polished (5) before finally grinding to a .0006 metallurgical finish and given a polyurethane seal (6).*

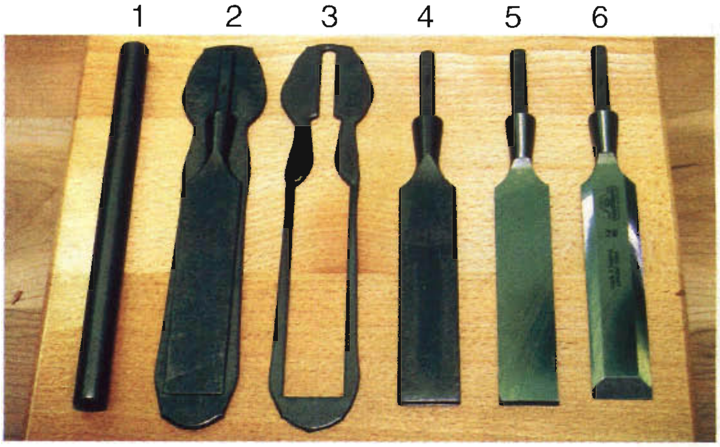


Photo courtesy of Nooitgedagt.

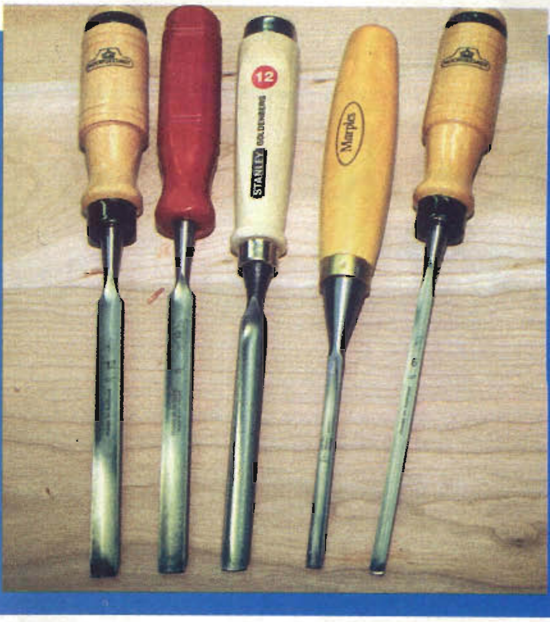


Photo 6. *Out-cannel gouges, also called firmer gouges, have curved blades that are sharpened on the out or back side of the curve, making them much easier to sharpen. From left to right; Nooitgedagt wood, Nooitgedagt red, Stanley Goldenberg, Marples ¼" and Nooitgedagt wood ¼".*

high carbon steel for longer life. Examining the ½" equivalents, I see that the Stanley is 12mm, and the Marples is 13mm. The Marples is approximately ¼" longer than the Stanley which has "carving tool round" handles. The Marples is a squared-off round. Their circumferences are identical—3¾" (which produces a working diameter of about 30mm, just shy of 1¼").

Right out of the package the Marples seemed more comfortable; fifty mallet strokes into a set of dovetails, it was a toss-up. I'm not sure I'd declare the handle better— just a bit different. Sorby offers comparable chisels in their Gilt Edge line. Their Model 505s offer gray polypropylene handles which are essentially similar to the Stanley and Marples blue chisels.

Bevel edged chisels permit accurate cutting in corners of less than 90°. Sorby Model 166 chisels feature Boxwood carving handles fitted with a leather washer. Their Model 167 chisels feature double hoops in solid brass for extra handle strength. The Sorbys are available in eight standard sizes from ⅛" through 1½". Sorby models 166 and 167 are available in a 2" size as well. Sorby chisels feature blades that are individually tested for hardness, and forged from special alloy steels for longer edge retention; a solid 2" x ⅜" diameter tang providing great strength and ultimate handle securement; cutting edges that are honed for immediate use; and a choice of six handle sizes. Lastly, all bevel edge chisels except the 2" size are fitted with a safety edge guard *(photo 5)*.

Freud markets a very satisfactory bevel-edged chisel. The blades are manufactured by a well known fabricator, with the boxwood handles produced by another. As much as I pressed for names, none were forthcoming from Freud. The company doesn't regard these products as a "major" part of their product line, but offer them to help dealers round out product offerings. They're available in sets of 4, 6 and 8 sizes. These sets may well represent as good a bang for the buck as exists in the chisel market today.

Woodworkers who don't require a full set of chisels, or who want to start with a few and then add pieces as they need them, should consider the Stanley Goldenberg Set 0-16-420 consisting of 3 pieces, 10, 15 and 25mm (that's ⅜", ⅝" and 1"). The handle is European style, made of hornbeam, with a ferrule at both ends. The maker advertises that the tool is honed, ready for use—and I'll report that it's indeed sharp enough to satisfy all but the fussiest users.

Gouges

Gouges are used for shaping, carving and molding various surfaces. The price involved in purchasing a set of gouges may keep you from buying, but you'll notice their absence. Whether or not a full set is necessary depends on your need *(photo 6)*.

There are two types of gouges. Out-cannel gouges, or firmer gouges, have curved blades with the cutting bevel ground on the outside of the curve *(photo 7)*. These are used for hollowing and cutting recesses for finger grips in all kinds of cabinet work (like finger pulls in drawers) and for roughing out hand-cut bowls and other sculpted work.

In-cannel gouges, also called scribing or paring gouges, are ground with the bevel on the inside, making them one of the most difficult tools to sharpen. These are used for vertical paring of curves, cutting moldings, channeling and other curved paring work.

Of the two types, I use the out-cannel tools far more frequently, though I use only a couple of sizes on a regular basis. I use the in-cannel tools less often, but due to the detail work they are designed to perform, having the right size is almost imperative. Because of that, if finances only allow one complete set, it would indeed be a set of the in-cannel tools.

In-cannel gouges are for paring work, so you really have no reason to be hitting this type of chisel. To my hands, Marple's boxwood handled gouges are superior.

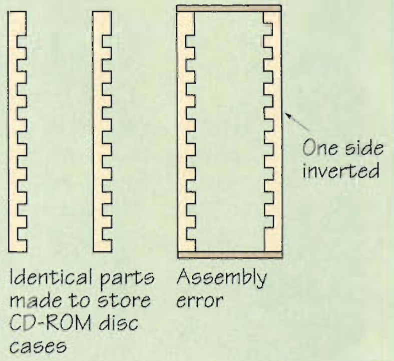
Sorby is a close equivalent to the Marples with boxwood handles that are absolutely without peer. I ranked the Goldenbergs lower than the Nooitgedagts because they seem a bit lighter and not as well finished.

If we take reasonably good care of them, chisels are a multi-generational purchase. Buy quality and comfort, and then use, but don't abuse, the tools. Lastly, whichever chisels or gouges you choose, you're almost certain to prefer a matched set over mix and match. PW

Mistakes of the Hand and Mind

Arrgh! Another stupid mistake.
Don't worry — try these handy tips
and start nipping costly errors in the bud!

Figure 1 MISTAKE OF THE MIND



One of my current projects is a book with the working title *Woodworking Mistakes and Solutions*. The job has opened a can of worms—or termites, as the case may be. I've run across statements like, "Expertise in woodworking is gained through trial and error" and "Becoming a good woodworker is a matter of learning from mistakes." Granted, there is a human error factor, but your accepting the inevitability of error may be the biggest mistake of all.

While "playing" can be an enjoyable aspect of woodworking, step-by-step experimentation through a project can waste a lot of time — and material. My thought, though not an original one, is that we gain knowledge by going to school. In essence, going to school means we learn from the mistakes of others so we can avoid those errors. I see nothing wrong with our stating proudly, "I taught myself," but we shouldn't be overcome by it. If we had to learn everything on our own we'd probably still be counting on our fingers.

I received a letter from a 75-year-young lady, recently widowed, who thought that woodworking would help her through a bad period and beyond. "I was so frustrated," she wrote, "and then, thank goodness, I found one of your books in a local library. If I'd had to learn on my own I would have quit before putting up my first shelf."

I see two phases of woodworking: engineering, which deals with cutting and joining; and creativity, which deals with design and appearance, to which we react subjectively. We can design from scratch or work from plans offered by others, making changes that please our own senses. In engineering, there is rarely room for compromise. You can't stretch a board that's cut too short or widen one ripped too narrow. There are acceptable variables with many joints but it's essential that components mate precisely.

Mistakes of the mind occur when we neglect to give woodworking proper

Figure 2 EXAMPLES OF "RIGHT" AND "WRONG" SIDE OF BLADE

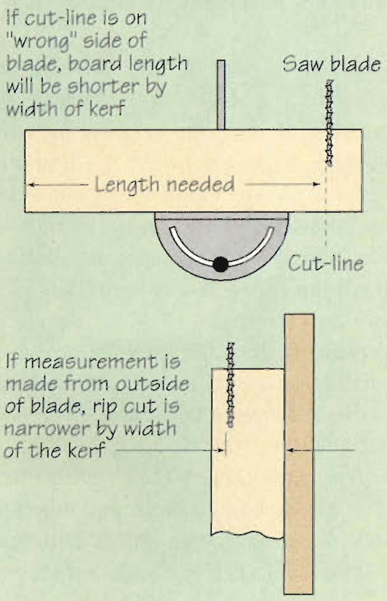
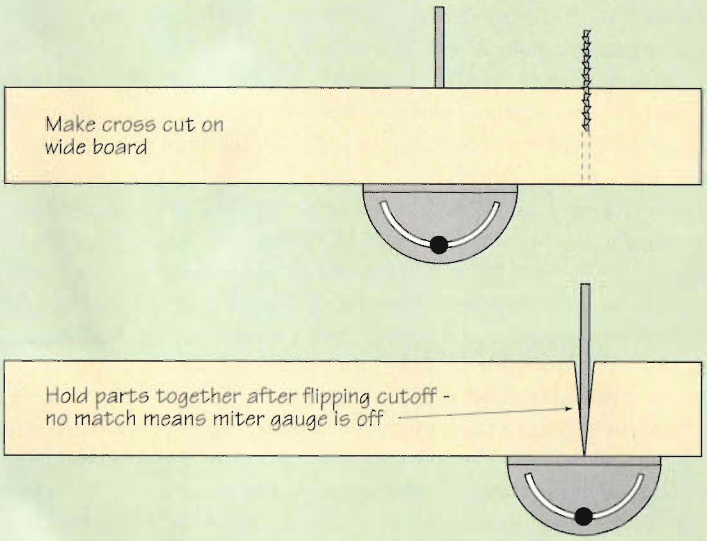

If cut-line is on "wrong" side of blade, board length will be shorter by width of kerf
Saw blade
Length needed
Cut-line
If measurement is made from outside of blade, rip cut is narrower by width of the kerf

Figure 3 EASY WAY TO CHECK 90° MITER GAUGE SETTING


Make cross cut on wide board
Hold parts together after flipping cutoff - no match means miter gauge is off

by R.J. De Cristoforo

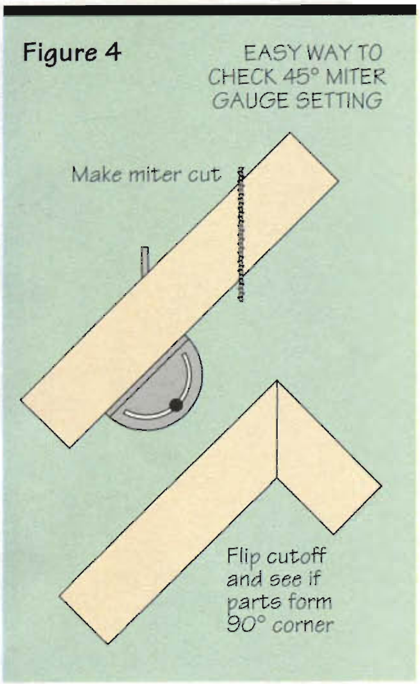


Figure 4

EASY WAY TO CHECK 45° MITER GAUGE SETTING

Make miter cut

Flip cutoff and see if parts form 90° corner

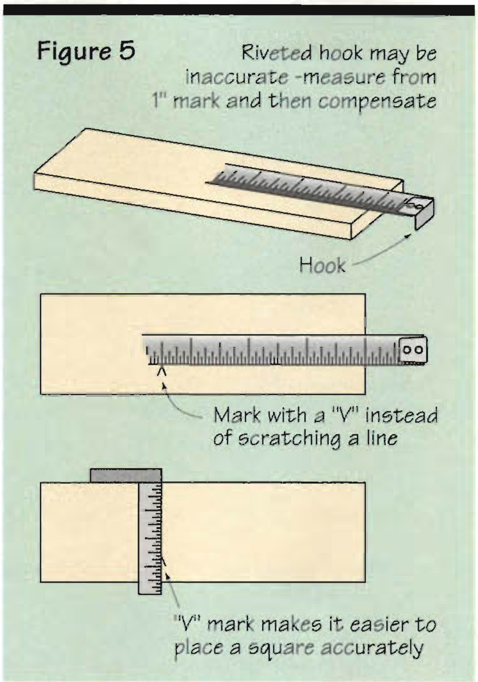


Figure 5

Riveted hook may be inaccurate -measure from 1" mark and then compensate

Mark with a "V" instead of scratching a line

"V" mark makes it easier to place a square accurately

> *"I see nothing wrong with our stating proudly, 'I taught myself,' but we shouldn't be overcome by it. If we had to learn everything on our own we'd probably still be counting on our fingers."*

attention. One of my recent projects was a small storage box I wanted for storing CD-ROM cases. The cases were to slide in grooves cut into opposite sides of the storage box. All went well through the material sizing and dadoing stages. I did the assembly and set the project aside to allow the glue to set. I even got to doing final sanding before I became aware of the goof that's shown in ***figure 1***. Always do dry runs before the final step.

I've wondered more times than I care to admit why a board seems shorter, or, say, narrower than my measurements intended them to be. Being preoccupied may cause you to overlook important details—remember, saw blades have a "right" and a "wrong" side ***(figure 2)***. Unless you make sure the cut is on the waste side of the dimension line, you will reduce width, or length, by the gauge of the blade. This kind of mistake prompted the adage "measure twice, cut once." There's another factor to measuring twice. It slows you a bit, helping to induce a pace that's conducive to accurate and more pleasurable woodworking — like occasionally taking a deep breath.

We know how important it is for tool components to be in alignment, but we do it once and then forget that there are factors, like vibration, that can thwart us. It would be excessive to check daily, but there are ways to prove accuracy as you go. For example, when cross-cutting on a table saw, flip the cutoff and butt it against the part from which it was cut ***(figure 3)***. If they don't match, check the miter gauge. This test will also alert you when the angle between the blade and table is not 90°. The thought also applies when sawing 45° miters. You'll know attention to alignment is required if the flipped cutoff and the parent piece do not form a 90° corner ***(figure 4)***. Like many of us, I do a lot of measuring with a flex tape, but I don't always trust the hook, regardless of whether it swivels or slides. When I need to be more careful I measure from the 1" mark (and remember to add the inch so my work won't be shorter than I intend). I mark an inverted "V" instead of scratching a dimension point. This makes it easier, for example, to place a square accurately ***(figure 5)***. When using a steel rule it's a good idea to hold it at an angle and slide the marker down a graduation line, which is more accurate than placing the rule flat and scratching a line ***(figure 6)***.

Often, when sawing a board to length, we mark the length "in the field" to be sure the board will have square ends. A better method is to square one end first then measure for length. This will reduce your chances of measuring and sawing errors ***(figure 7)***.

I've come to accept, as we all should, that lumber and plywood thicknesses have plus-or-minus tolerances. This becomes apparent, and frustrating, when you've cut a groove with a dado assembly and discover that the insert piece is too thick or too thin to fit cor-

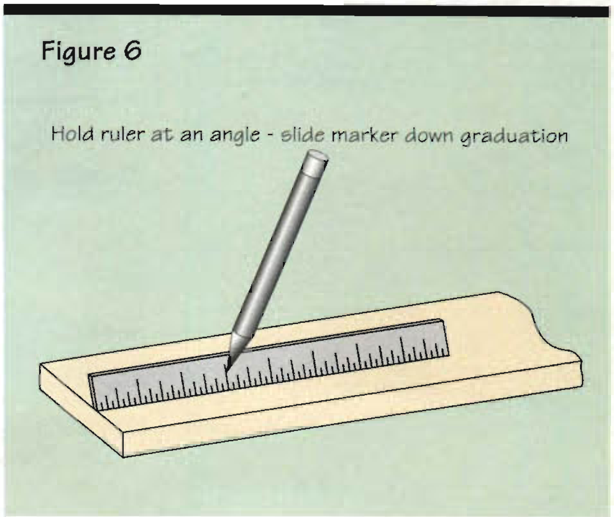


Figure 6

Hold ruler at an angle - slide marker down graduation

> *"While 'playing' can be an enjoyable aspect of woodworking, step-by-step experimentation through a project can waste a lot of time — and material."*

Figure 7

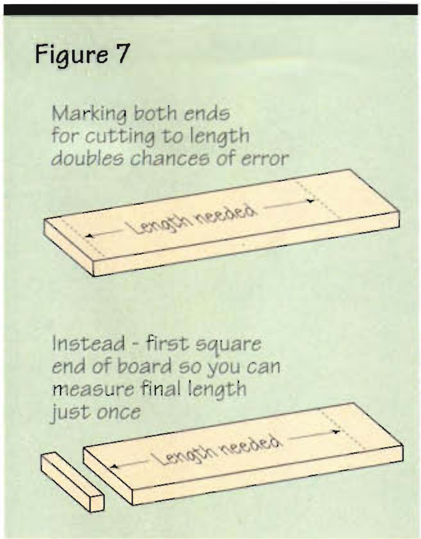
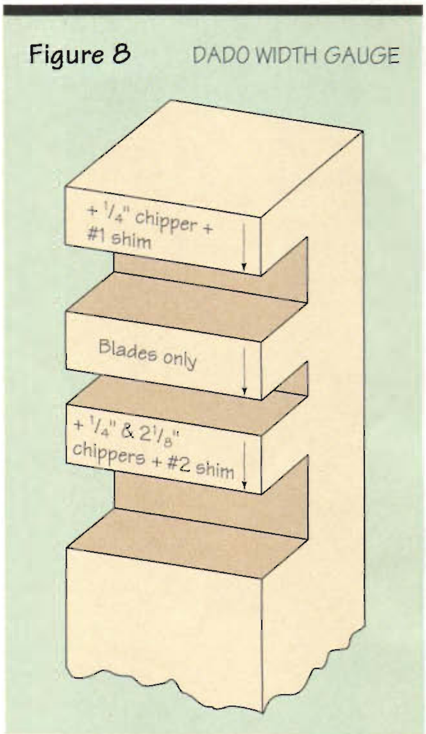


Figure 8 DADO WIDTH GAUGE



rectly. We can't fatten or put the material on a diet, so we compensate by using shims of various gauges. To avoid having to make frequent test cuts, I have a dado gauge like the one shown in *figure 8*. Each time I'm sure of the cut, I make one in the gauge and mark it to list the blades, chippers and shims that are needed. It saves a lot of time, eliminates trial and error, and certainly contributes to accuracy.

If we work carefully, with full attention to the job at hand, we adopt methods that contribute to expertise while minimizing if not eliminating errors. These practices should be part and parcel of our everyday life in the wood shop. PW

R. J. (Cris) De Cristoforo, is a woodworking and tool authority and is a Contributing Editor to Popular Woodworking.

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Calendar

If your group is hosting an event and you would like other woodworkers to hear about it, please send all pertinent information (date, location, description and fees) at least four months before the opening date to: Calendar, *Popular Woodworking*, 1507 Dana Ave., Cincinnati, Ohio 45207.

California

California Carver's Guild 18th Annual Carving Show. September 16-17. Held at Coast High School, Cambria. 80 carvers will hold exhibitions, demonstrations and carving competitions. For more information, call (805) 434-2677.

Connecticut

Brookfield Craft Center Summer Workshops. Held at Brookfield Craft Center, Brookfield. August 5-6: Spindle Turning. August 19-24: Adirondack Guide Boats. August 21-25: All About Beads. August 26-27: Router Basics, Tool Sharpening, Millefiore Polyform Canes. For more information, call (203) 775-4526.

Illinois

Illinois Valley Woodland Show. August 26. Held at Marshall-Putnam County Fairgrounds, Rt. 29, Henry. Live demonstrations, exhibits, crafts, seminars, children's activities, food, entertainment. For more information, call (309) 364-3979.

Kentucky

Woodturning and Joinery Instruction. Classes are offered year-round. Topics include woodturning and joinery. For more information, call (606) 986-8083.

Maine

Center for Furniture Craftsmanship. Ongoing classes. Call or write for a brochure and registration information: The Center for Furniture Craftsmanship, 125 W. Meadow Rd., Rockland, 04841; (207) 594-5611.

Minnesota

Wood Carving School. Offers year-round classes. For more information, call (612) 927-7491, or write 3056 Excelsior Blvd., Minneapolis, 55416.

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Good Wood Show VI. September 22-24. Held at Elks Club, Billings. Woodcarving competition. For more information, call (406) 628-7447.

Ohio

The Woodworking Shows' Greater Cleveland Show. I-X Center - West Hall. For more information, call (800) 826-8257.

New York

The Woodworking Shows' Syracuse Show. September 22-24. Held at ONCENTER - Hall A, 800 S. State St. Syracuse. For more information, call (800) 826-8257.

North Carolina

Country Workshops' Summer Tour. August 7-12: Carving Swedish Woodenware. August 14-19: Welsh Stick Chairs. August 27-September 2. Norwegian Lapstrake Boatbuilding. For more information, call (704) 656-2280.

Pennsylvania

Traditional Windsor Chair Making. Classes offered year-round in Earlville. Topics include woodturning and sharpening techniques for beginners to advanced levels. For more information, call (215) 689-4717.

The Woodworking Shows' Delaware Valley Show. Valley Forge Convention Center-Pennsylvania Hall. For more information, call (800) 826-8257.

Tennessee

Arrowmont School of Arts and Crafts. July 17-August 11. Gatlinburg. One-and two-week workshops on multiple woodturning topics. For more information, call (615) 436-5860.

Vermont

22st Annual Woodcarvers' Exhibit. August 19. Held at People's Academy Gymnasium, Morrisville. Wood carvers from several states will be demonstrating, displaying and offering work for sale. No admission charge. For more information, call (802) 644-5039.

Virginia

Woodworker's Club "Fundamentals of Woodworking." August 5-6. Two day intensive introduction to woodworking. Class provides hands-on experience with basic woodworking techniques and equipment. Students will practice new skills while building a desktop book rack. For more information, call (703) 255-1044.

Washington

Quilceda Carvers "Artistry In Wood." September 23-24. Evergreen State Fair Grounds, Monroe. 10th annual competition/show and sale, includes carving classes. Mailed entries accepted. For more information, call (206) 743-1425.

Wisconsin

Wisconsin Woodworkers Guild. September 6: Show & Tell Techniques and Projects. Held at Red Carpet Lanes, West Allis. September 9: Fifth Annual Lumbering Workshop. Held at Jim Hallanda's Shop in Merton. For more information, call (414) 258-3132.

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New products to announce? Send a press release and color transparency or slide to the Products Editor, *Popular Woodworking*, 1507 Dana Ave., Cincinnati, OH 45207, and we'll consider them for News and Notes.

Heard It Through the Pipeline

Tired of struggling with your old crank-style pipe clamps? The new **POWER PRESS™ Pipe Clamp** from American Tool might take the pressure off you and put it where it should be — on your work!

Power Press Clamps' design makes them easier to use than traditional pipe clamps, The clamp mounts on a standard ¾" pipe, but unlike other pipe clamps, does not require threaded pipe. Both ends are adjustable, and the jaws can be quickly and securely positioned anywhere on the pipe.

The clamp also features a "Flip Handle" that can be finger adjusted in the extended position at either end, eliminating awkward repositioning. The clamp also features an eight-pitch screw instead of the usual six-pitch design, allowing for finer adjustment and powerful pressure. The clamps may also stand freely, which may eliminate the need for a clamp stand.

Power Press clamps retail for about $25. For more information, contact American Tool Companies, Inc., 8400 LakeView Parkway, Suite 400, Kenosha, WI 53142; (414) 947-2440. Circle #125 on Resource Directory Coupon.

Diamonds Are a Tool's Best Friend

The new **Diamond Mini-Sharp™** Sharpener from DMT Inc. allows you the freedom to sharpen your router bits, chisels, carving knives and other blade tools wherever you are — just reach into your pocket!

The size of a pack of chewing gum, the Mini Sharp™ can be used to keep a sharp, clean cutting edge on woodworking tools, including carbide and high speed tool steel. Plus, you can extend the life of your router bits by sharpening the metal edges to maintain a keen edge without leaving your shop.

Used wet or dry, the Mini Sharp comes in three sharpening textures, fine, coarse and x-coarse.

The Mini-Sharp retails for about $10. For more information, write: Diamond Machining Technology, Inc., 85 Hayes Memorial Drive, Marlborough, MA 01752; (508) 481-5944. Circle #126 on Resource Directory Coupon.

Let's get this straight

Say you don't have a jointer? **Joint A-billi-T™** may just offer the solution you've been looking for!

Simply clamp your work in the Joint A-billi-T and run any router (with a suitable straight bit) along the edge. Join A-billi-T is really a giant jig that guides your router straight and true. You get a square edge every time.

Joint A-billi-T also cuts rabbets, grooves, tapers and dados. And it's portable — carry it easily to job sites or store it away when not needed to save valuable shop space. Mount it on your bench or clamp it to a portable work surface such as saw horses.

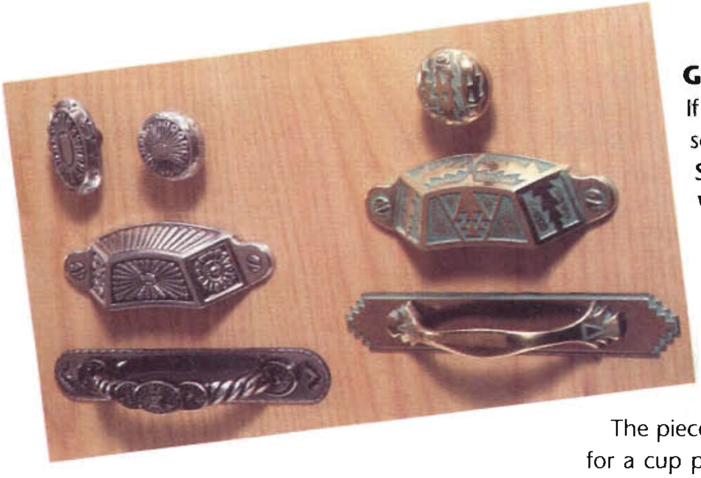
Joint A-billi-T ranges in price from $135 for the 60" model to $259 for the 120" model. For more information, contact Gudeman Enterprises, P.O. Box 126, Goodfield, IL 61742; (309) 965-2183. Circle #127 on Resource Directory Coupon.

Saw it loud? Don't be proud!

Does your saw blade seem just a tad too loud? Amana Tool Corporation wants to help you out with its new **Timberline™** series saw blades. The blades feature a thin-kerf design with very tight run tolerances and a low noise level.

Four different blades are available for general purpose cutting, cross cutting, a blade for laminates and plastics and an ATB grind for glass-smooth cut offs and mitre cutting.

Timberline blades retail for $35 to $50. For more information, contact Amana, 120 Carolyn Blvd., Farmingdale, NY 11735; (800) 445-0077. Circle #128 on Resource Directory Coupon.



Go west, woodworker!

If you want to accentuate your work with the popular southwestern look, try the new **Sundance and Southwestern Lodge** hardware lines from **The Woodworker's Store.**

The Sundance line features hand polished silver-look knobs, a cup pull and a standard pull with a backplate. The Southwestern Lodge hardware line, with an aged-look finish that's enhanced with verdigris green, includes a knob, a cup pull and a standard pull with a back plate.

The pieces range in price from $2.25 for the knobs to $4.25 for a cup pull. For a catalog or more information about these products and more, write The Woodworker's Store, 21801 Industrial Blvd., Rogers, MN 55374; (800) 279-4441. Circle #129 on Resource Directory Coupon.

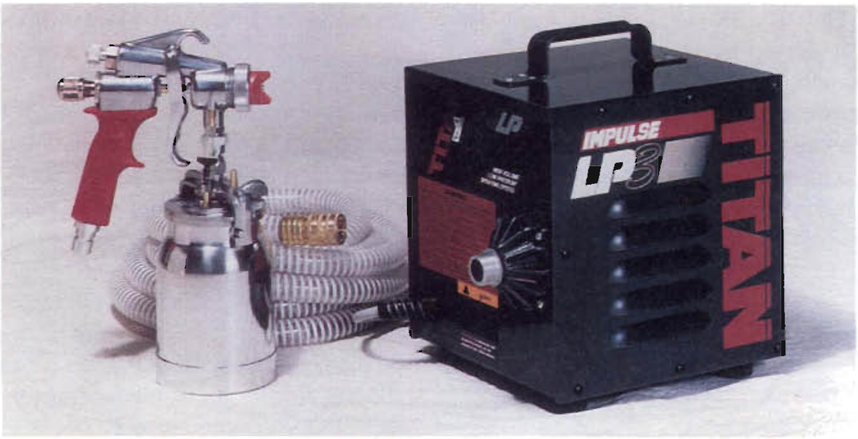
Under Pressure

Looking for a versatile, high volume, low pressure paint sprayer? Titan, Inc. introduces the new **Impulse LP3**, which is ideal for many paint applications, from furniture finishing to sign painting.

Use the Impulse LP3 to spray a variety of coatings, including stains, lacquers, enamels, polyurethanes, finish quality latexes and multi-colored coatings.

Weighing only 20 pounds, the Impulse LP3 utilizes a high volume of low pressure air produced by a three stage tangential turbine. This process atomizes coatings without a lot of overspray and bounce-back — in fact, it offers a transfer efficiency rating of up to 90%.

The Impulse LP3 also comes with Titan's new Pro-Finish Gun and .051 Needle/nozzle set, #0 Indexing air-cap, a quart cup and and 20' of air hose with quick disconnect fitting. It retails for about $600. For more information or a demonstration, contact Titan, 556 Commerce St., Franklin Lakes, NJ 07417, (800) 526-5326. Circle #130 on Resource Directory Coupon.



Resource Directory

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ARROW FASTENER COMPANY, INC. is one of the oldest American hand tool manufacturers. In addition to its world famous line of all steel staple gun tackers and staples, Arrow also produces a full line of Brute steel rule measuring tapes, rivet tools, hot melt glue guns, and supplies. Arrow . . . the standard of excellence by which all others are judged. **Circle #100.**

RYOBI AMERICA CORP. offers a wide range of power tools, outdoor power equipment and builder's hardware for the serious do-it-yourselfer and professional tradesman. Ryobi offers a wide selection of bench-top, cordless, portable and specialty power tools; a variety of gas, electric and battery-powered outdoor power equipment; and an assortment of builder's hardware. Designed and manufactured to exacting standards of quality, durability and reliability, yet affordable. Free catalog. **Circle #106.**

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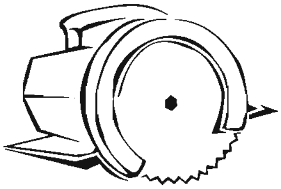

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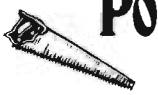

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A/S '95

Black Walnut

North America's premium hardwood for practicing the cabinetmakers' art.

Traditionally one of the most sought-after hardwoods in North America, black walnut easily lives up to its reputation. Although a little expensive, this is a wood that will earn you high praise when used in just about any project.

General Description

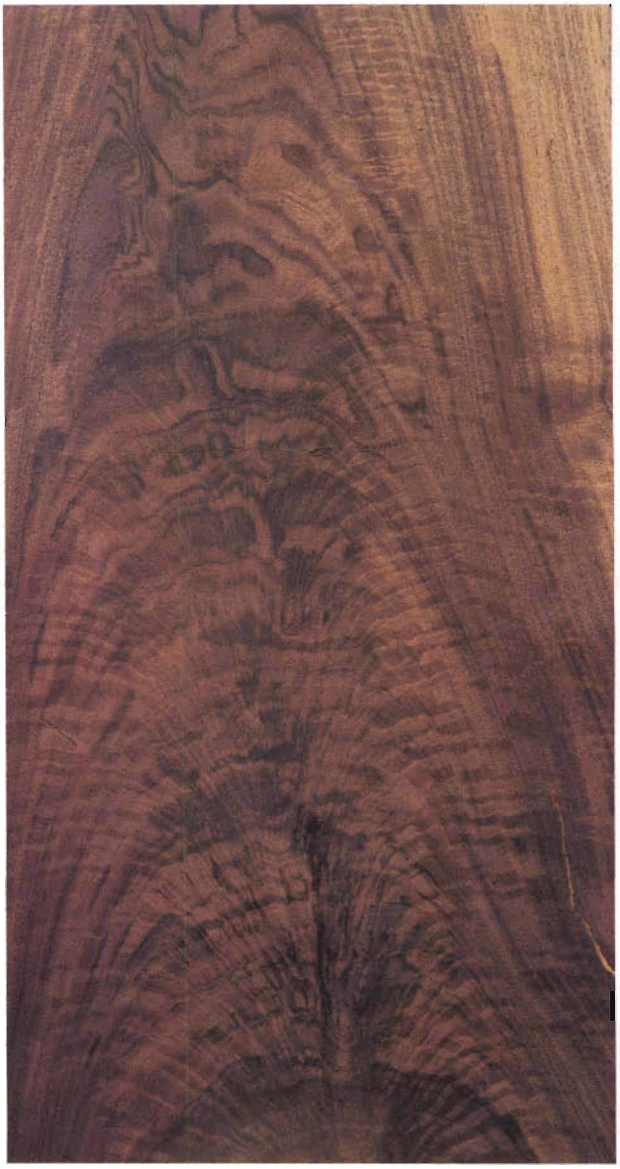
There are a half dozen species of walnut tree in North America, but black walnut (*Juglans nigra*) is by far the species most frequently sawed into lumber. The wood is also called American walnut, or sometimes American black walnut, both probably representing efforts to distinguish it from its European cousin, *Juglans regia*.

Compared with oaks or maples, black walnut is less common. However, the tree's range is more widespread than maple, stretching from southern Vermont westward to the Great Plains, and south to Texas and back east through the Piedmont. It is also found in Canada. The prime growing region for Black walnut is the Ohio River Valley.

Black walnut trees are fussy, thriving only in soils that are deep, well drained, rich and moist. They do not like to grow near other species and need lots of bright sun to flourish. They are found only on a spotty basis in mature forests and pure stands are rare.

The tree will grow straight with a small crown when in competition with other trees. However, since many black walnuts grow in the open, particularly at the edge of open fields, branching can start very low therefore dividing the trunk often. Burls frequently grow at unpredictable points on the trunk. Growth in general is relatively slow; these trees often require 150 years to reach a height of 80 feet. However, a walnut tree can survive as many as 250 years, provided soil and light conditions remain constant. Its hallmark is the hard, black walnut, which is edible. The husk has been used as a source of yellow dye.

The wood of black walnut is moderately heavy, hard, stiff and often remarkably handsome. The heartwood is light brown to dark brown, with a sapwood that looks like dirty cream. However, the amount of sapwood in comparison to the amount of heartwood is modest for a hardwood. The variability of walnut's grain makes it attractive. Everything from fountain-like crotches and swirls to wavy fiddleback and striped grain is possible. Walnut burls provide truly unique grain patterns, especially when veneers are expertly matched.



A fine example of crotch Black walnut veneer. The veneer is sliced from the tree at the intersection of a main branch to the trunk. It is typically used as the panel for door frames in cabinetwork. (Crotch veneer courtesy of Constantine's.)

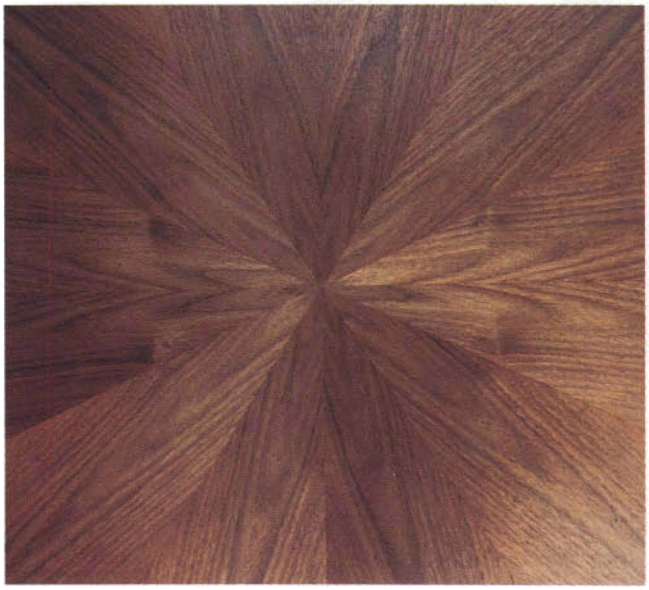
The stability of kiln-dried walnut is quite good, which gives it an advantage over most oaks and some maples. It rarely checks or warps when in open storage, and shows relatively little movement in finished projects. It's highly resistant to decay, even when in contact with the ground. It is shock resistant, and moderately easy to steam bend. Black walnut traditionally has been a wood used for fine finish carpentry and cabinetmaking. Architectural paneling, furniture, gunstocks, cabinets, interior finish and decoration are among its chief uses. In colonial times, it was also used for fence posts, feed troughs and tool handles.

Working Properties

In general, black walnut is easy to work, although it does have some shortcomings. Most of the difficulties seem to be confined to individual planks, not an entire load of lumber. Because black walnut trees often grow in the open, a

by Ken Textor

The flat cut or plain sliced black walnut veneer at right is arranged in a pie shape, or sunburst. Each adjacent wedge of the pie is taken in sequence from the flitch with alternate pieces flipped to bookmatch them as well. (Veneer lay-up by Bill Kraemer Veneers, New Albany, Indiana.)



lot of tension can build up in the wood. When released in the woodworking processes, this tension can bind up even the sharpest saw blades, particularly when ripping.

Tension in the wood can also result in chipping when the wood is planed. Planer chipping is also caused by internal knots and defects. Because the wood is so valuable, sawyers are reluctant to cull out boards that may contain a defect here and there but are otherwise usable. Sometimes those defects are visible, sometimes they're not. Either way, they can cause headaches for the woodworker.

Still, hand planing, power planing, routing and boring in run-of-the-mill boards cause few problems, because black walnut trees tend to grow straight-grained. Nevertheless, cross-cutting with a circular saw or hand saw can sometimes leave a rough edge that can be prevented by scoring the line before cutting.

On the other hand, sanding is a pleasure, usually because of the very good results you get in power planing. I was able to start right in with 150-grit sandpaper after running planks through my planer. You can work up rapidly to 320-grit or finer, producing a highly polished finish.

Turning walnut on a lathe also yields good results. Although not quite as tight and closed-grained as beech (PW #77) or hard maple (PW #60), walnut's good woodworking and sanding qualities make it relatively easy to turn small details and obtain a good finish. Turned shavings come off easily and evenly, and the resultant dust gives the air a smell of sweetened autumn leaves. Black walnut is also an easy wood to carve with hand or power tools.

Fastening and gluing black walnut is a snap. With screws, a correctly sized pilot hole is advisable, but wax lubricants are unnecessary. The wood resists glue staining well, and both resin and epoxy glues present few complications.

Finishing

To me, finishing black walnut in anything other than a clear varnish, shellac, oil or lacquer is risky. I have seen professional wood finishers achieve interesting results by using stains on black walnut, but it seems to take a lot of finishing experience to know just the right mixtures.

If you have some experience staining wood, you'll find walnut accepts stain nicely, without the blotchiness associated with some stock such as birch, maple and pine. As long as the stain is not too dark, it can enhance the natural color. Walnut, however, can be beautiful when finished clear, with no color added.

Black walnut's grain pores may require you to use a paste grain filler. Be careful, though. It must be tinted (usually a brown) so that the filler is not visible in the pores after drying. Mix a little oil stain in an oil-based neutral filler, or buy premixed filler with the color already added.

Coloring black walnut for the best effect may take some practice. Professional finishers often choose a dye rather than a pigmented stain, because a dye generally enhances the grain patterns while a pigmented stain can mute the wood's natural colors and grain patterns. But of course, dyes will fade in the sunlight while pigmented stains hold up much better over time. Colors are a matter of personal taste.

Availability

Black walnut is widely available throughout the United States. It's the quantity, quality and price that's the problem.

Unless you live in the heart of black walnut country, expect to pay from $3.50 to $9 per board foot. The wide variation in price is due to several factors, not the least of which is how much figure there is in the wood. Fiddleback, striped, crotch and burled wood all bring premium prices. There are also periodic "runs" on black walnut, when the wood suddenly becomes very stylish and is featured in national newspapers and fashion magazines. This happened most recently about ten years ago and the price of black walnut temporarily soared. And of course, the farther you live from black walnut country, the more you'll pay.

In all cases, beware of some of the tricks of the trade. Because black walnut is so desirable, some sawyers will go to questionable lengths to get the most out of those expensive logs they bought. Black walnut is often cut into 8⁄4 planks, although some 12⁄4 and 16⁄4 planks are available by special order. Still, these

Black walnut burl has a distinct pattern and usually shows a wide contrast in color. (Burl veneer slice courtesy of Constantine's.)

thicker planks tend to mask several problems common to black walnut. Extra thickness will stabilize the plank more than if it were cut into 4⁄4 planks. Sweep, warp and twisting are therefore less common in 8⁄4 planks. Cut them open, though, and you may find a decided bow in what appeared to be a straight plank. Moreover, an 8⁄4 plank will hide defects buried inside. In this way, more sapwood and knotty wood can be sold as a higher grade lumber. In fact, this effort to bury defects will sometimes be extended to stacking larger shipments of black walnut so that the lower quality planks will be in the middle or on the bottom of the stack, hidden from easy detection.

You can sometimes keep your black walnut costs down by telling the sawyer you'll accept sapwood boards as well as heartwood. Many production cabinet shops won't accept boards with sapwood in them, leaving lumber yards to market that wood as best they can. However, I think a little sapwood mixed into a project gives it personality. Plus, it appeals to my bank account.

Another solution to the high price of black walnut is using veneers. Depending on the grade of wood, black walnut veneers cost from 50¢ to $4.50 per square foot. You can get excellent figured veneers between 50¢ and $1.50 per square foot, including striped and wavy figure. The higher prices are for premium burls, crotches, book-matched grain and the like. By the way, burls and crotches in veneer form are more stable, much easier to work with, and much more likely to be available in veneer than in solid lumber form. Black walnut plywood is also a way to keep costs down. It's usually readily available or can be shipped within a few days.

To sum up, working with black walnut is to a woodworker as a fine filet mignon is to a cultured gourmand. It's not always necessary but it sure is a pleasure whenever the opportunity comes along. PW

***Ken Textor** is a woodworker, writer and contributing editor to* Popular Woodworking *who lives in Arrowsic Island, Maine.*

Popular Woodworking's CAPTION THE CARTOON CONTEST

sponsored by **BOSCH**

Submit your caption(s) for this issue's cartoon on a postcard to *Popular Woodworking*, Cartoon Caption #14, 1507 Dana Ave., Cincinnati, OH 45207. The entry deadline is August 20, 1995. Entries will be judged by the editorial staff. A winner and two runners-up will be chosen.

The winner will receive the Bosch 2HP Electronic Variable Speed Plunge Router, Model B1450. Features include: Microfine bit depth adjustability from any plunge position, a quick change template guide system that eliminates the need for a screwdriver, shaft lock requiring only one wrench for operation, self releasing collet for sure bit gripping and ease of bit change, electronic variable speed providing controlled, soft starts and constant RPM. The 11 Amp motor operates at 12,000 to 22,000 RPM.

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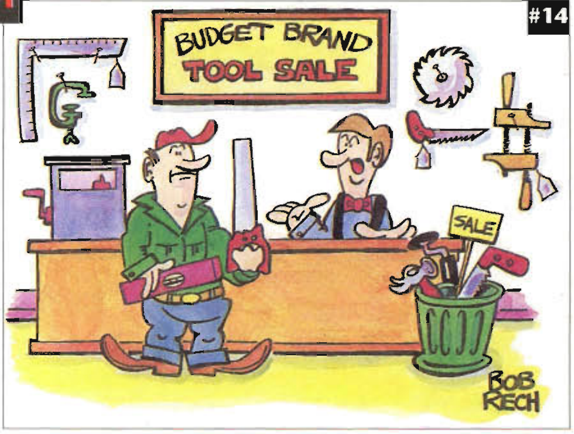

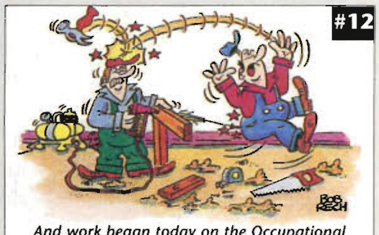

And work began today on the Occupational Safety and Health Administration's new National Headquarters building.

The Winner of our "Caption the Cartoon Contest #12"

from the May issue and recipient of the Bosch Variable Speed Plunge Router is:
Norman Stewart from Tamwater, WA
The runners-up receive a one-year subscription to *Popular Woodworking*:
Rick Wiles, from Westhampton Beach, NY, for:
"Five minutes ago, as a sign of the truce, Billy McCoy and Jim Hatfield had started on the project."
Mark Mahoney, from Alexandria VA, for:
"Nail guns don't shoot people's butts. People with nail guns shoot people's butts."

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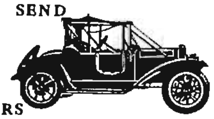

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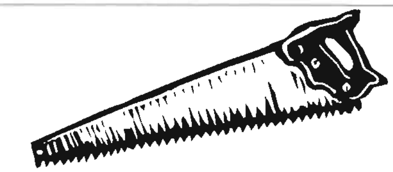

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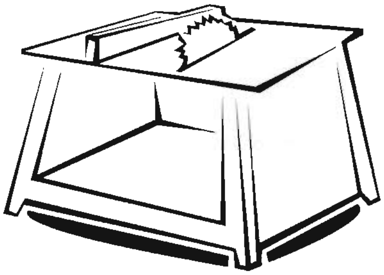

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Out of the Woodwork

continued from p. 72

yearn for what I had not. When it came to furniture, home improvements, the new deck or built in appliances, all hinged on whether or not we could get published.

When we moved to California from New York after having sold most of our worldly goods, the kids slept on the floor for months until an editor approved our proposal for a story on how to build bunk beds.

Once, when coffee table projects were hotter than espresso at Starbuck's, we had six flawless models crowding our sofa-less living room. Half a dozen editors were eager for coffee table how-to's. The overflow, except for one unit, went to the first visitors who arrived after acceptance of the stories. This left us with a red-lacquered Oriental design that was quite handsome but not in keeping with our rustic lifestyle.

At that time, door-to-door solicitors had not yet been discouraged in our friendly town. One day, a former used-car salesman, who had turned his marketing skills to Eureka vacuum cleaners, showed up at our door. Since we were making do with a Bissell sweeper and an electric broom, the complete ensemble of cleaning tools put an avid gleam in my eye.

Cris listened politely, professed interest, asked questions, and ended up persuading the seller to swap a fully-equipped Eureka for the red-lacquered table. To this day I chuckle to think of the man who considered himself a hot-shot salesperson as he drove away with a table straddling the back seat of his car while we took turns trying out our new accessorized vacuum.

When Cris was producing a book on concrete and masonry, I pitched in to help with the bricklaying and concrete mixing. This did more for my chest than a Madonna-inspired bustier. Unfortunately, my shoulders and biceps developed as well. It took some time before I lost the linebacker look.

A how-to writer's wife teaches her patience, resilience, tolerance for sawdust, flexibility and resignation. Still, if you don't mind waiting for money while you ponder which bills to pay on schedule, if you can cope with unpredictability as you receive enough rejection slips to paper a room, if you can relinquish fringe benefits and stock options, and if you can face the discipline and isolation of working alone, go do it! The freedom of being your own boss with just a five second commute to work may compensate for everything else.

Once your friends, family and perhaps even you have accepted the fact that you might be tinged with madness to live this way, the rest is a piece of cake ... or plywood!

Woodworking, sawdust, hand and power tools are the hubs around which the wheels of our life revolves.

And it's a wonderful life.

***Mary Cristy**, a newspaper columnist and freelance writer, is married to Popular* Woodworking *Contributing Editor R. J. (Cris) De Cristoforo.*

Out of the Woodwork

by Mary Cristy

Married ... with Craftsman

An idyllic life blessed with everything ... except a regular paycheck.

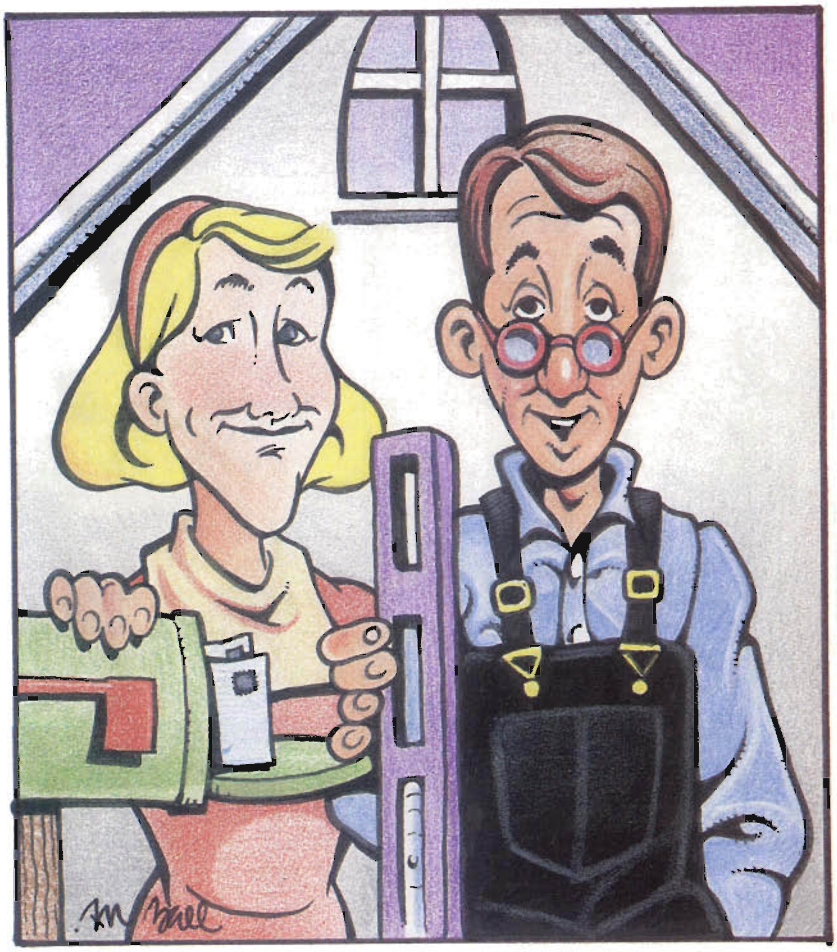

ILLUSTRATION BY RON BELL

Life with a do-it-yourself writer is a kaleidoscope, a merry-go-round, a "chicken tonight, feathers tomorrow" romp, with mood swings that range from jubilation to desperation.

No marooned sailor on his lonely atoll ever waited for mail more hopefully than does my craftsman writer when anticipating an advance against royalties or a check for his latest story.

In fact, mail call is the highlight of our day. My husband, Cris, who sometimes fails to hear entire paragraphs when I'm talking, can discern the mail truck's departure in town three and a half miles away, and provide minute by minute updates on its progress to our door.

In the early days, when we were struggling for a credit line on editorial mastheads, we sifted the day's haul eagerly for long, white, window envelopes. Since bills come in similar envelopes with discouraging regularity, gloom and doom often threatened to engulf us.

Our bills were an ongoing source of concern to Cris' mother, who wrung her hands and urged, "Speak to my son. Tell him to get a job!"

"He has a job," I would respond, gently but firmly. She would depart, shaking her head and clicking her rosary beads. I'm certain she had many sleepless nights when she realized her son had married a woman as custard-brained as himself.

With an older son well on his way up the corporate ladder, Cris' mother was challenged to search the family tree for a relative from whom Cris had inherited his improvident genes. My own mother, herself a risk-taker with a self-employed husband, told me, "Let him try," when, after the birth of our second son, Cris proposed quitting a highly paid job in an aircraft factory for full-time freelance writing. In the years that followed I vacillated, wondering whose mother's viewpoint would prevail.

Cris' lifelong romance with crafts and writing began long before our June marriage in the 1940s, and afforded our sons the benefit of a long apprenticeship. I learned to suppress my fears as the boys progressed from child-size tool sets and woodpile scraps to power tools and exotic woods. No wife or mother can view a dado assembly with equanimity when the fingers of her menfolk are in its path, and, conversely, no do-it-yourself partner can deny the pride of seeing those same men producing cabinets and furniture that rival the finest creations of old world artisans.

To free Cris for more production time, I edited and typed his copy. An eloquent author and poet, Cris' syntax was perfect, but his spelling could only be described as, well, creative. We traded off baby-sitting and writing, and when I wasn't housekeeping or posing with projects he sold to editors, I wrote inspirational pieces and confessions for romance magazines. Such sales contributed to our budget, but were not frequent enough to offer solvency.

The plus side of having Cris at home was having him on call 24 hours a day. I could tuck in our sons for afternoon naps, then go shopping and pity the harassed mothers who dragged howling toddlers through markets.

Still, as a do-it-yourselfer's housemate I learned to want what I had, rather than

continued on p. 71

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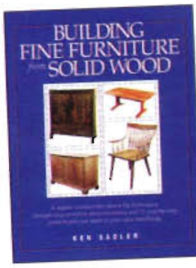

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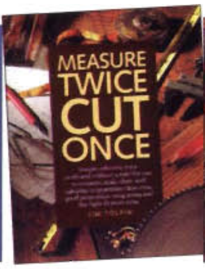

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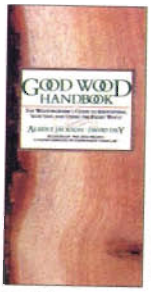

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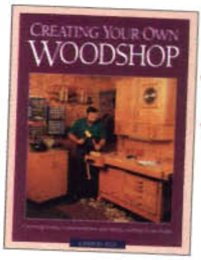

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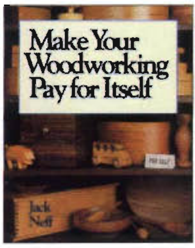

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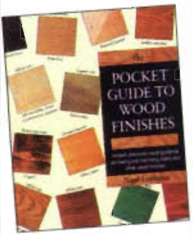

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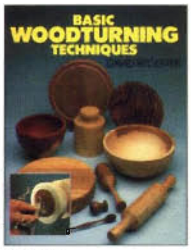

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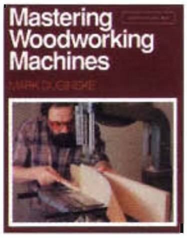

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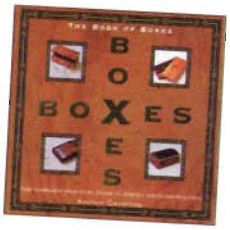

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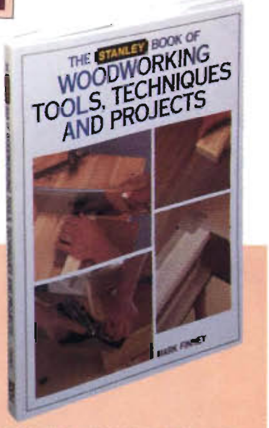
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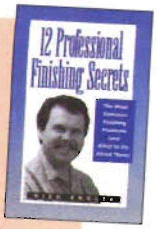

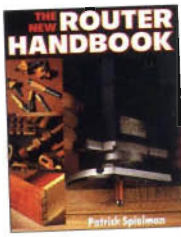

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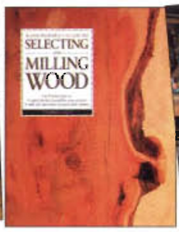

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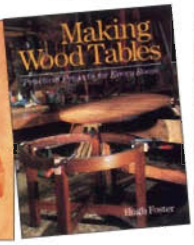

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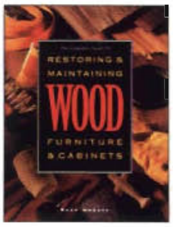

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